



UiO : **University of Oslo**

Alternatives to journal-based metrics in research assessment

Alexander Refsum Jensenius
Science Europe Conference on Open Science
18 October 2022



Expert Group on Open Science / Science 2.0
European University Association



Professor of music technology, UiO

Director, RITMO Centre for Interdisciplinary
Research on Rhythm, Time and Motion

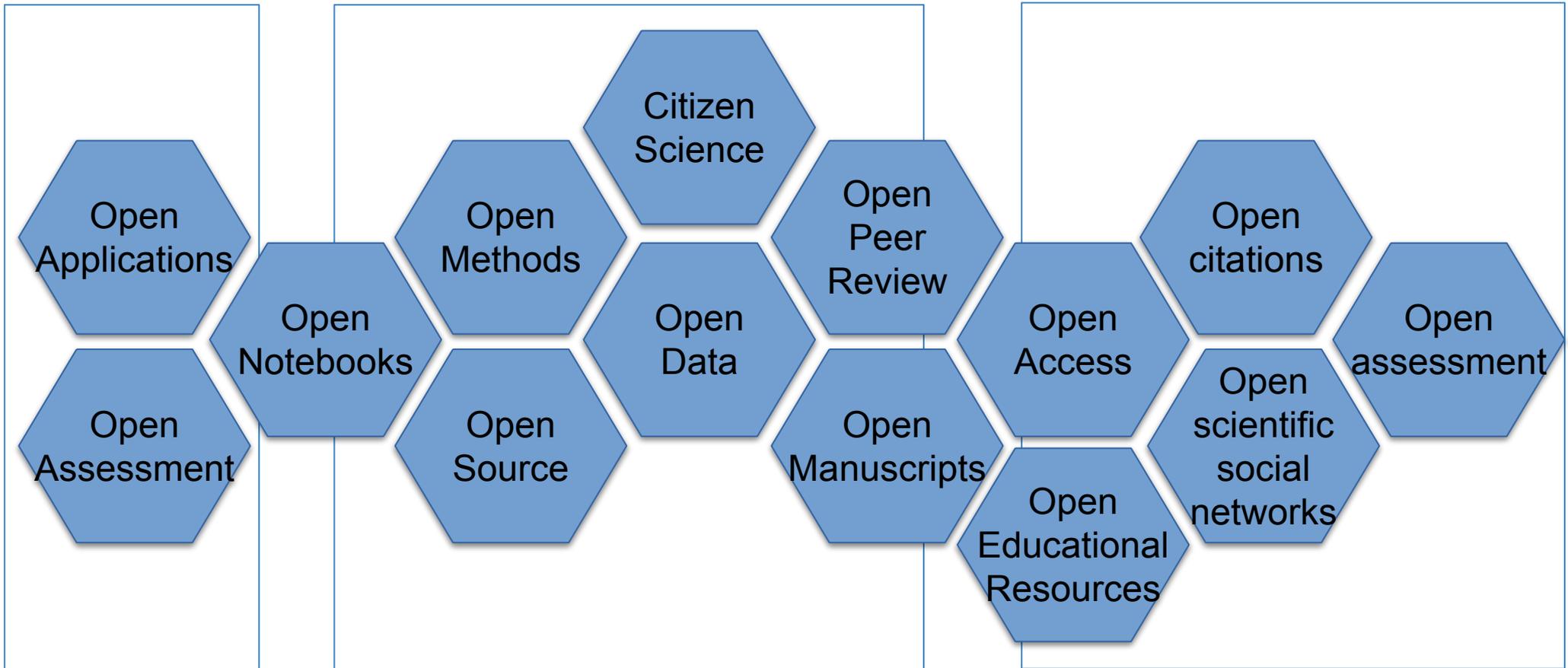
Open Science \approx Open Research

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graph LR; A[Application] --> B[Research]; B --> C[Output]
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Application

Research

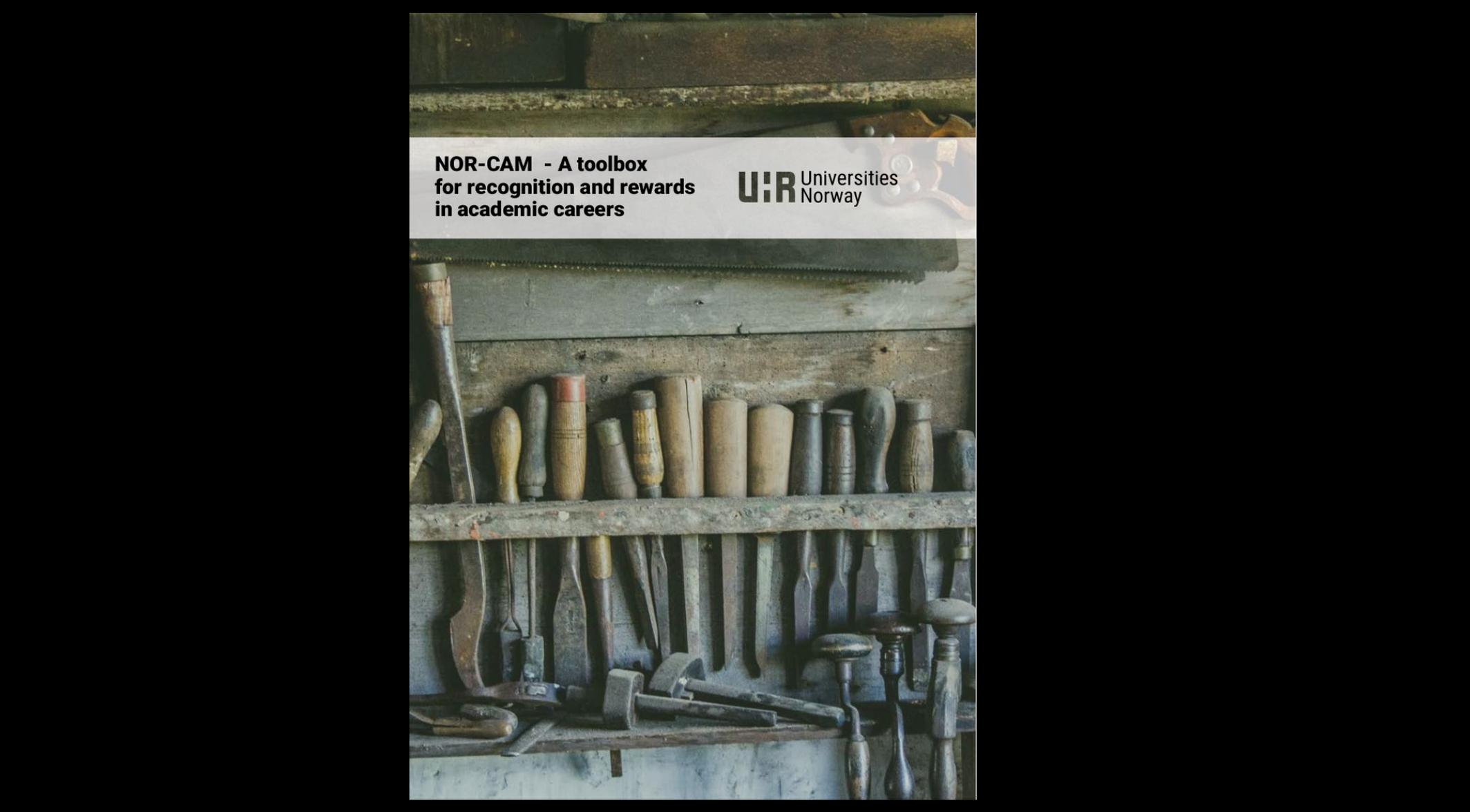
Output





NOR-CAM

Norwegian Career Assessment Matrix

A photograph of a workshop with various tools on shelves. The tools are arranged on wooden shelves against a wall. The tools include a saw, a hammer, a chisel, a mallet, and several other hand tools. The lighting is warm and the overall atmosphere is that of a well-used, traditional workshop.

**NOR-CAM - A toolbox
for recognition and rewards
in academic careers**

U:R Universities
Norway



Evaluation of Research Careers fully acknowledging Open Science Practices

Rewards, Incentives and/or recognition for researchers practicing Open Science

Written by the Working Group on Rewards under Open Science
July - 2017

Research and Innovation



Career Assessment in the Transition to Open Science

18 MAY 2020 | WORKSHOP
OSLO, NORWAY

Inspiration

Room for everyone's talent

towards a new balance in the recognition and rewards of academics

> Diversifying and vitalising career paths

We enable more diversity in career paths and profiles for academics.



> Achieving balance between individuals and the collective

We assess academics based on both their individual and their team performance.



> Focusing on quality

In our assessments of academic performance, we increasingly focus on quality, content and creativity.

> Stimulating open science

We encourage academics to share their research outcomes with society.



> Stimulating academic leadership

We stimulate good academic leadership at all levels.

The Open Science Career Assessment Matrix (OS-CAM)

Open Science Career Assessment Matrix (OS-CAM)	
Open Science activities	Possible evaluation criteria
RESEARCH OUTPUT	
Research activity	Pushing forward the boundaries of open science as a research topic
Publications	Publishing in open access journals Self-archiving in open access repositories
Datasets and research results	Using the FAIR data principles Adopting quality standards in open data management and open datasets Making use of open data from other researchers
Open source	Using open source software and other open tools Developing new software and tools that are open to other users
Funding	Securing funding for open science activities
RESEARCH PROCESS	
Stakeholder engagement / citizen science	Actively engaging society and research users in the research process Sharing provisional research results with stakeholders through open platforms (e.g. Arxiv, Figshare) Involving stakeholders in peer review processes
Collaboration and Interdisciplinarity	Widening participation in research through open collaborative projects Engaging in team science through diverse cross-disciplinary teams
Research integrity	Being aware of the ethical and legal issues relating to data sharing, confidentiality, attribution and environmental impact of open science activities Fully recognizing the contribution of others in research projects, including collaborators, co-authors, citizens, open data providers
Risk management	Taking account of the risks involved in open science
SERVICE AND LEADERSHIP	
Leadership	Developing a vision and strategy on how to integrate OS practices in the normal practice of doing research Driving policy and practice in open science

Academic standing	
Peer review	
Networking	science
RESEARCH IMPACT	
Communication and Dissemination	Participating in public engagement activities Sharing research results through non-academic dissemination channels Translating research into a language suitable for public understanding
IP (patents, licenses)	Being knowledgeable on the legal and ethical issues relating to IPR Transferring IP to the wider economy
Societal impact	Evidence of use of research by societal groups Recognition from societal groups or for societal activities
Knowledge exchange	Engaging in open innovation with partners beyond academia
TEACHING AND SUPERVISION	
Teaching	Training other researchers in open science principles and methods Developing curricula and programs in open science methods, including open science data management Raising awareness and understanding in open science in undergraduate and masters' programs
Mentoring	Mentoring and encouraging others in developing their open science capabilities
Supervision	Supporting early stage researchers to adopt an open science approach
PROFESSIONAL EXPERIENCE	
Continuing professional development	Investing in own professional development to build open science capabilities
Project management	Successfully delivering open science projects involving diverse research teams
Personal qualities	Demonstrating the personal qualities to engage society and research users with open science Showing the flexibility and perseverance to respond to the challenges of conducting open science

Six principles

- Measure quality and excellence through a better **balance between quantitative and qualitative goals**
- **Recognise several competencies** as merits but not in all areas at the same time or by each employee
- Assess all results, activities and competencies **in the light of Open Science principles**
- **Practice transparency** in the assessment and visibility of what should be recognised as merit
- Promote **gender balance and diversity**
- **Assist in the concrete practice** of job vacancy announcements and assessment processes locally

NOR-CAM - Norwegian Career Assessment Matrix

Column 2:
Examples of results
and competences

Column 3:
Documentation

Column 1:
Six areas to be
assessed

Column 4:
Reflection

1. Area of competence	2. Results and competences (examples)	3. Documentation	4. Reflection
A. Research output	<ul style="list-style-type: none"> -Published works -Databases -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/IRRI - 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.
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.

1. Area of competence

A. Research output

2. Results and competencies (examples)

- Published works
- Datasets
- Software
- Methodologies
- Artistic results
- Research reports

3. Documentation

CRIS systems
(e.g. Cristin) and other
databases

4. Reflection

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

- Leadership and participation in research groups
- Working across disciplines
- Research integrity/RRR
- 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

- 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.

D. Impact and innovation

- 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

- 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.

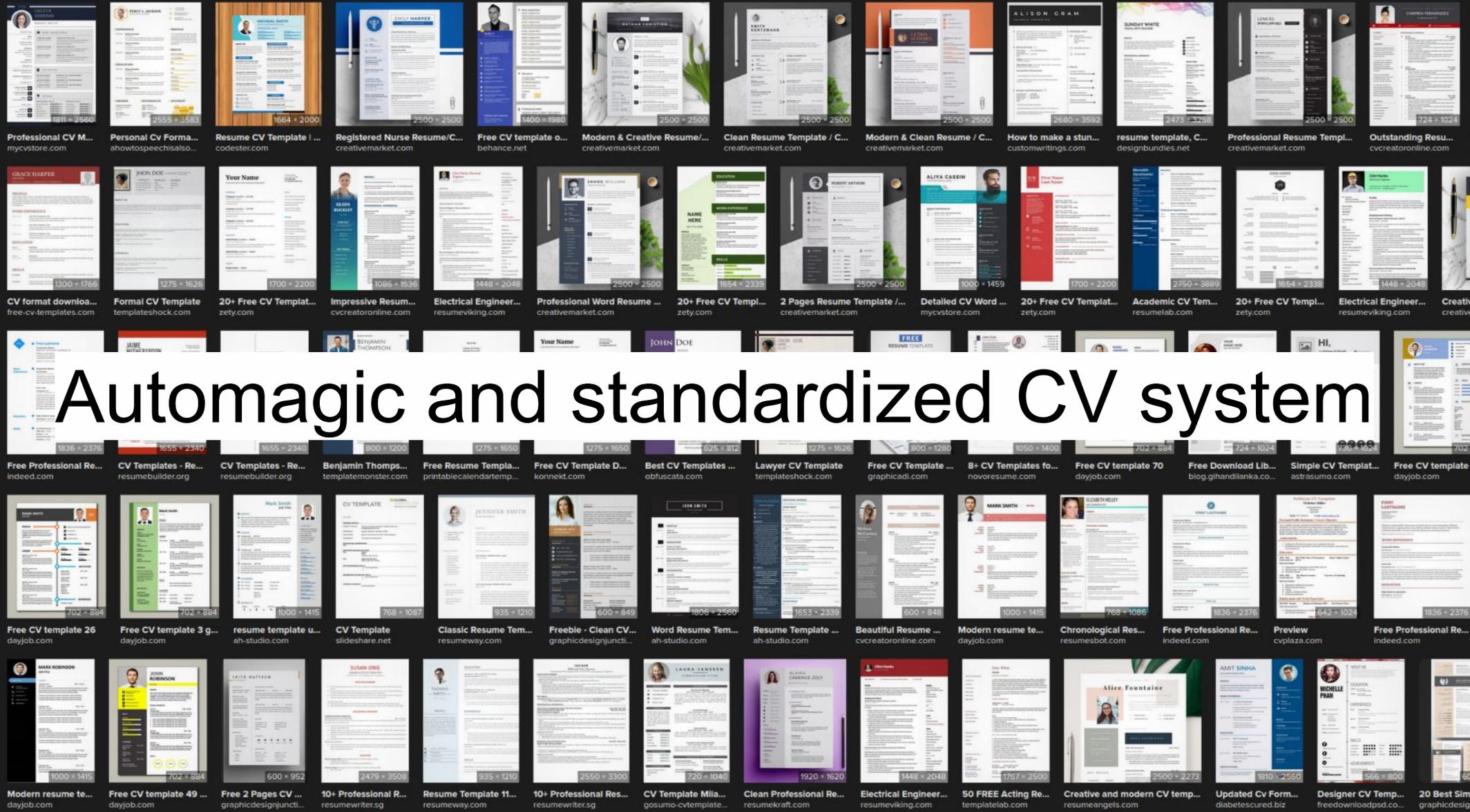
**Formal and informal leadership, reflection on roles, processes and effects.
Contribution to strategies and policy development in relation to open science.**

F. Other experience

- 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.



Automagic and standardized CV system

Professional CV M... mycstore.com 1813 x 2660
Personal CV Forma... ahowtopspeechisalso... 2555 x 3583
Resume CV Template | ... codester.com 1564 x 2090
Registered Nurse Resume/C... creativemarket.com 2500 x 2500
Free CV template o... behance.net 1400 x 1980
Modern & Creative Resume/... creativemarket.com 2500 x 2500
Clean Resume Template / C... creativemarket.com 2500 x 2500
Modern & Clean Resume / C... creativemarket.com 2500 x 2500
How to make a stun... customwritings.com 2680 x 3592
resume template, C... designbundles.net 2479 x 3298
Professional Resume Temp... creativemarket.com 2500 x 2500
Outstanding Resu... cvcreatoronline.com 724 x 1024

CV format downloa... free-cv-templates.com 1300 x 1756
Formal CV Template templateshock.com 1275 x 1626
20+ Free CV Templa... zety.com 1700 x 2200
Impressive Resum... cvcreatoronline.com 1086 x 1536
Electrical Engineer... resumeviking.com 1448 x 2048
Professional Word Resume ... creativemarket.com 2500 x 2500
20+ Free CV Templ... zety.com 1654 x 2333
2 Pages Resume Template /... creativemarket.com 2500 x 2500
Detailed CV Word ... mycstore.com 1000 x 1459
20+ Free CV Templa... zety.com 1700 x 2200
Academic CV Tem... resumelab.com 2750 x 3899
20+ Free CV Templ... zety.com 1654 x 2338
Electrical Engineer... resumeviking.com 1448 x 2048
Creativ... creative...

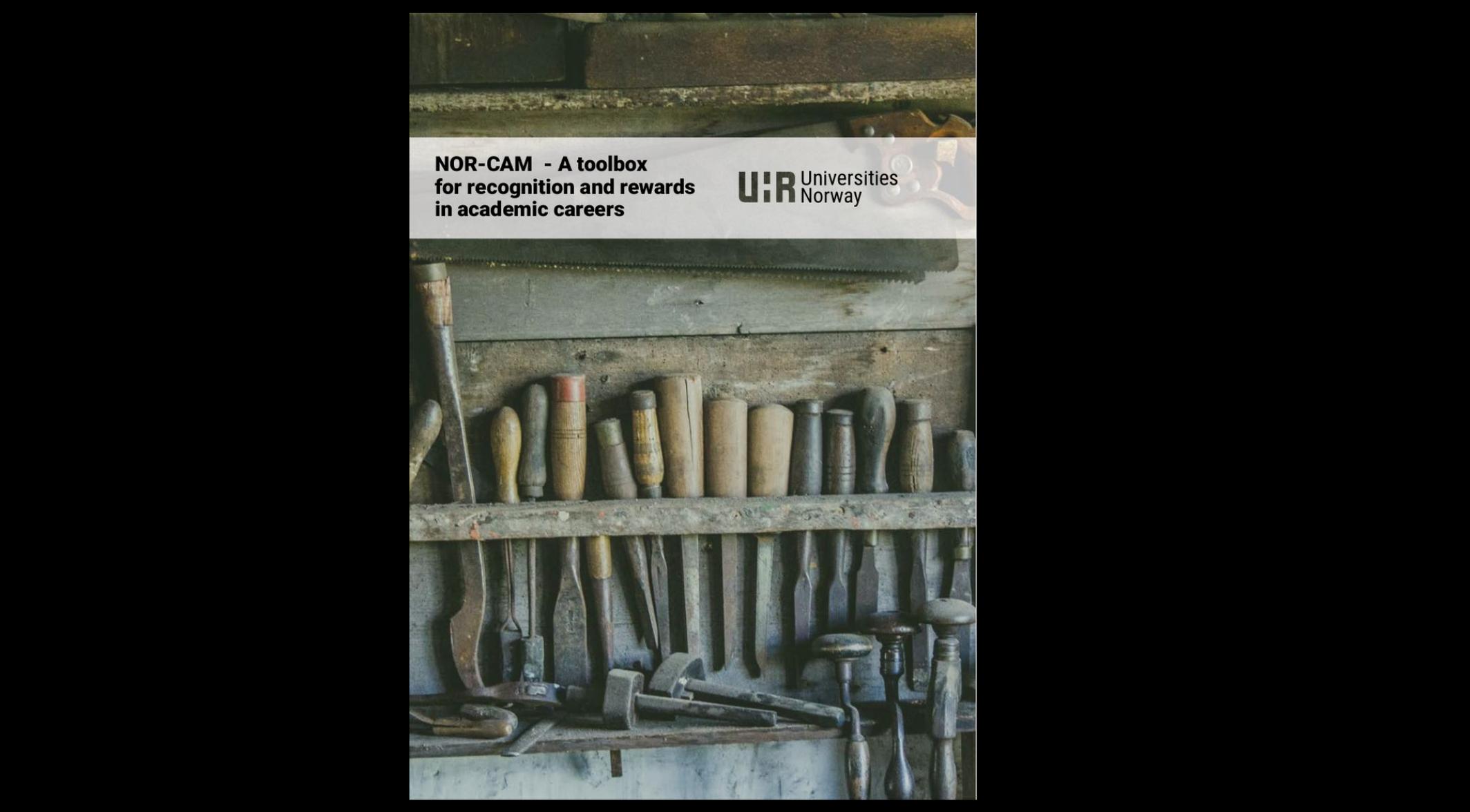
Free Professional Re... indeed.com 1836 x 2378
CV Templates - Re... resumebuilder.org 1655 x 2340
CV Templates - Re... resumebuilder.org 1855 x 2340
Benjamin Thomps... templatemonster.com 800 x 1200
Free Resume Templa... printablecalendartemp... 1275 x 1650
Free CV Template D... konnekt.com 1275 x 1650
Best CV Templates ... obfuscata.com 825 x 812
Lawyer CV Template templateshock.com 1275 x 1626
Free CV Template ... graphicadi.com 800 x 1280
8+ CV Templates fo... novoresume.com 1050 x 1400
Free CV template 70 dayjob.com 702 x 884
Free Download Lib... blog.gihandilanka.co... 724 x 1024
Simple CV Templa... astrasumo.com 746 x 963
Free CV template dayjob.com 702 x 884

Free CV template 26 dayjob.com 702 x 884
Free CV template 3 g... dayjob.com 702 x 884
resume template u... ah-studio.com 1000 x 1415
CV Template slideshare.net 768 x 1087
Classic Resume Tem... resumeway.com 935 x 1210
Freebie - Clean CV... graphicdesignjuncti... 600 x 849
Word Resume Tem... ah-studio.com 1808 x 2560
Resume Template ... ah-studio.com 1553 x 2339
Beautiful Resume ... cvcreatoronline.com 600 x 848
Modern resume te... dayjob.com 1000 x 1415
Chronological Res... resumesbot.com 768 x 1086
Free Professional Re... indeed.com 1836 x 2376
Preview cvplaza.com 642 x 1024
Free Professional Re... indeed.com 1836 x 2376

Modern resume te... dayjob.com 1000 x 1415
Free CV template 49 ... dayjob.com 702 x 884
Free 2 Pages CV ... graphicdesignjuncti... 600 x 952
10+ Professional R... resumewriter.sg 2479 x 3508
Resume Template 11... resumeway.com 935 x 1210
10+ Professional Res... resumewriter.sg 2550 x 3300
CV Template Mila... gosumo-cvtemplate... 720 x 1040
Clean Professional Re... resumekraft.com 1920 x 1620
Electrical Engineer... resumeviking.com 1448 x 2048
50 FREE Acting Re... templatelab.com 1767 x 2500
Creative and modern CV temp... resumeangels.com 2500 x 2273
Updated Cv Form... diabetescured.biz 1810 x 2560
Designer CV Temp... freedownloadpsd.co... 566 x 800
20 Best Sim graphicdesigner.com 600 x 800

Automagic and standardized CV system

- User friendly
- Web based
- Retrieve data from different national and international systems
- Integrated with recruitment/assessment systems

A photograph of a workshop with various tools on shelves. The top shelf has a large saw. The middle shelf has several wooden-handled tools. The bottom shelf has various metal tools, including hammers and wrenches.

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in academic careers**

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