Towards Responsible Research Career Assessment

Cohen, J.; Bajanca, F.; Lam, M.; Stroobants, K.; Novitzky, P.; Björnmalm, M.; Kismihók, G.; Loeber, A.

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Introduction

Growing evidence suggests that the evaluation of researchers’ careers on the basis of narrow definitions of excellence is restricting diversity in academia, both in the development of its labour force and its approaches to address societal challenges. The current research evaluation system is hampering diverse career pathways spanning research, teaching and (community) service. It inhibits the inclusion and retention of minorities, women, people from lower socio-economic backgrounds and meaningful public engagement with research.1,2 Improving the evaluation system in a concerted effort with research institutes and other funders will help fully realize a European Research Area (ERA) that is open to all talents. This diversity is essential to sustain academic careers, to strengthen the relevance and impact of science for society, and to enhance the resilience of our society and environment.

Advice to MSCA Policymakers

Increasing attention to responsibility in, of and for research practices (as evidenced in Responsible Research and Innovation3 and Open Science4 in the ERA), has galvanized researchers and organisations to call for a change in the research evaluation system. While the academic evaluation landscape is shifting (as documented in the following pages), much remains to be done. The Marie Skłodowska-Curie Actions (MSCA) can spearhead these developments by implementing the following recommendations:

1. Broaden current evaluation criteria of MSCA calls in dialogue with all relevant stakeholders, making responsible use of the options outlined below, to enlarge and modernize the notion of excellence (as done with the Gender dimension). Reward applicants and organisations that engage in open and responsible research through public engagement, science education, open science and ethical research;

2. Provide (online) training for evaluators on implicit bias to reduce the risks of perpetuating narrow interpretations of research excellence in their evaluations;

3. Offer training within the MSCA programme, such as via Innovative Training Networks, to prepare researchers and organizations for open and responsible, academic as well as non-academic careers. This includes a focus on transferable skills such as leadership and community engagement5 and attention to societal challenges;

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2 Institute, RoRI; Hancock, Sally; Wakeling, Paul; Chubb, Jennifer (2019) 21st Century PhDs: Why we need better methods of tracking doctoral access, experiences and outcomes. Research on Research Institute. Report. p.10 https://doi.org/10.6084/m9.figshare.9917813.v1
4 https://ec.europa.eu/research/openscience/index.cfm
4. Reward and showcase MSCA grantees who excel in multiple dimensions of research, teaching, and service by showcasing and rewarding their work prominently on the MSCA website and social media;

5. Support knowledge exchange and communities of practice around diverse and inclusive forms of excellence by involving a wide range of stakeholders (including civil society) in the ongoing discussion around modernizing and diversifying the concepts of excellence, and what counts as good and impactful academic practice.

MSCA: Preparing for Future Careers?

The aim of the MSCA programme is “to equip researchers with the necessary skills and international experience for a successful career, either in the public or the private sector. The programme responds to the challenges sometimes faced by researchers, offering them attractive working conditions and the opportunity to move between academic and other settings.”6 These activities include: Innovative Training Networks (ITNs), training the next generation of researchers; Individual Fellowships (IFs), empowering future research leaders; RISE staff exchange programmes; COFUND matching opportunities; and European Researchers’ NIGHT engagement opportunities. All activities within the MSCA programme intend to increase skills and exchange experiences so that grantees can develop to their fullest potential and contribute to the intellectual development and prosperity of European society.

Despite these intentions, narrow notions of research excellence suppress researchers’ development, creativity, and engagement, to the detriment of advances in knowledge and society. The mono-focus on oft-cited publications in high-impact factor journals contributes to scientific fraud, positive results bias and a lack of replication studies.7,8,9,10 Despite this, such definitions of research excellence still dominate the academic environment. The use of overly simple definitions and measures of excellence can lead to strategic behaviour and goal displacement, has adverse effects on interdisciplinarity,11 institutions and knowledge production and leads to task reduction.12

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Snapshots from the MSCA Programme

Interviews with MSCA stakeholders demonstrate the nuanced ways in which a narrow understanding of research excellence affects MSCA practices. Even though the MSCA programme already highlights some aspects of responsible research and innovation, namely gender equality and interdisciplinarity, an MSCA IF evaluator demonstrates how the narrow notion of excellence still permeates evaluation practice: “Many co-evaluators put a lot of emphasis on [traditional] academic excellence. I have seen comments coming from others criticizing these young researchers that they haven’t published enough in high-ranking journals, that they haven’t been in excellent schools” (Int. 4). He adds that this focus on certain interpretations of excellence “is the main barrier for an opening towards societal responsiveness” (Int. 4). He speaks of how it is still the dominant paradigm in some research policy networks: “I think it is still the understanding of high-level policy makers that this narrow understanding of excellence is the way to go. That it is the best way to go, to make sure that Europe is academically competitive compared to other regions” (Int. 4).

According to an Open Science expert, this has to do with how research output has been evaluated in recent decades. The exclusive focus on output of oft-cited articles in high-impact peer-reviewed journals has led to “a complete disregard for anything that isn’t high quality in these measures. Which means that people wouldn’t even pursue something that doesn’t score high. As a consequence, there is little output, but the output scores [well] in this indicator because that’s the only thing that gets you further in your career” (Int. 3). A former MSCA policymaker mentioned the expectations of supervisors and the host organisations in which they work as a crucial factor that perpetuates this disregard: “We also get feedback from supervisors: ‘we want researchers spending 100% of their time on their research, rather than going to spend time giving lessons or participating in communication events’, etc. Even if we ask supervisors to be fully aware of these principles, for some of them it is harder than for others” (Int. 1). A former grantee and MCAA representative echoes this dependence on the priorities of supervisors whilst another MCAA representative laments the mediating role of short-cycle funding and the accompanying lack of time. The academic culture is slow to change, according to the MSCA policymaker.

As the Open Science expert explains, the narrow focus on research excellence has led to “a system [that] is very much revolving around itself, there is [sic] no feedback mechanisms what that means outside of the academic system” (idem). In his eyes, this has led to “a monolithic researcher: everyone kind of is the same. […] For teaching, for outreach, for society, it is horrible because we only have one perspective” (Int. 3). He underlines “[that a focus on publishing] is a valid position to have but I don’t think it is a valid position to have for everyone. […] The system crowds out its most creative people.” (idem). In other words: the desired output of (post)doctoral programmes may fail to deliver the creative minds that science and society need. Narrow excellence practices proliferate in the absence of training on other aspects: “If you look at the education of PhD students, all of them do classes on scientific publishing […] Basically, the end goal is always publication” (Int. 3). According to another Open Science expert, “applicants tend to be trained in academic excellence and rarely trained in what impact is other than research impact. People don’t understand what societal impact of research is, they don’t know how to look at their outputs in another way” (Int. 8).
Stifling Diversity of Academic Practices and Knowledge Production

These dynamics are developing a monoculture of scientists that predominantly produce written work for their peers. This stifles diverse ways of knowing and practices that do not fit the research excellence paradigm. In-depth research of the local impacts of indicator use shows that quantitative indicators, when used in the wrong way, can lead to situations in which “epistemic originality, long-term scientific progress, societal relevance, and social responsibility receive less attention or become redefined […]. We understand this trend to be in tension with policy goals that seek to encourage innovative, societally relevant, and responsible research.”

We conclude that the current research evaluation system and associated academic culture, by singularly prioritizing publications, renders invisible diverse scholars with alternative ways of knowing, inter- and transdisciplinary skills, and talents in education and societal engagement.

Moreover, according to a recent position paper of the League of European Research Universities (LERU), the predominant practice fosters inequality in access and retention of specific groups of talented researchers. A report from the Research on Research Institute similarly notes: “Without a radical disruption to current trajectories, doctoral expansion per se is unlikely to ensure a more representative research workforce. Ensuring diversity and inclusion means more than simply access to opportunity. The career prospects of even tenured academic staff continue to be shaped by gender, ethnicity and socio-economic background – despite initiatives to enhance equity in the research system. […] They are, nonetheless, morally and politically troubling – and likely curtail the quality and usefulness of the research produced”. Interestingly, as the authors of the report underline (idem), these processes reinforce the Matthew Effect, in which positions of senior academic leaders are served and consolidated at the cost of newcomers. Magnifying these inequitable social outcomes, the scientific system itself is compromised, producing knowledge deprived of potential diversity and impact. This raises the question: does this lead to the brightest talents finding their way into and out of the scientific system to produce the most diverse and useful knowledge with the most positive impact?

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15 Institute, RoRI; Hancock, Sally; Wakeling, Paul; Chubb, Jennifer (2019) 21st Century PhDs: Why we need better methods of tracking doctoral access, experiences and outcomes. Research on Research Institute. Report. p.10 https://doi.org/10.6084/m9.figshare.9917813.v1


A Sea Change

In the research field and particularly among European research institutes, recognition is growing for the need to assess the scientific and societal impact of research beyond publications measured by the journal impact factor (JIF) and the h-index. Leveraging existing networks can increase the potential for meaningful impact. The San Francisco Declaration on Research Assessment (DORA) and the Leiden Manifesto have raised attention to the limitations of existing research metrics. A collective of Dutch universities (the Association of Universities in the Netherlands (VSNU), the Netherlands Federation of University Medical Centres) and science funders (the Netherlands Organisation for Scientific Research (NWO), the Royal Netherlands Academy of Arts and Sciences (KNAW) and the Netherlands Organisation for Health Research and Development (ZonMw)) have recently signed an agreement that stipulates an overhaul of how academic careers are evaluated. According to their position paper, the new system should focus on diversification of career paths, strike a new balance between the individual and the collective, focus on quality over quantity, and stimulate open science and academic leadership. In short: momentum is growing to change research career assessments.

22 https://sfdora.org/read/
New Frameworks and Practices

The question remains of how to put this reassessment into (policy) practice. An overview is presented of two groups of complementary options, quantitative and qualitative, that have been proposed to diversify research career assessment beyond narrow perceptions of excellence.

1. Matrices and Indicators

A first group of options consists of the implementation of new career assessment matrices and indicators, as have been developed in the context of Responsible Research and Innovation (RRI) and Open Science (OS). Any metrics used must be implemented responsibly, with attention to a few basic dimensions, as discussed in the following reports and summarised under 1f.

1a. Indicators for Promoting and Monitoring Responsible Research and Innovation (2015)\textsuperscript{25}

An Expert Group on Policy Indicators for RRI views RRI as the interplay between research and innovation (R&I) and the context in which it takes place. The group proposed indicators of action (in terms of processes and outcomes) within the R&I sector and of its perception by other actors and society. Indicators for impact should embrace the interactive character of most innovations, which do not move linearly from basic research to societal application. This approach emphasises involving stakeholders in indicator development. It posits that if stakeholders become the ‘owner’ of the monitoring framework, they will be more willing to accept this as a valuable instrument to improve their performance. In short, the group sees the development of indicators as a bottom-up process, guided by the collaboration among all relevant stakeholders. Proposed RRI indicators are categorized according to R&I processes, outcomes, and how such processes and outcomes are perceived (perception). They span eight key dimensions: public engagement, gender equality, science education, open access, ethics, governance, sustainability and social justice/inclusion. \textsuperscript{26}

1b. Open Science (OS) Career Assessment Matrix (2017)\textsuperscript{27}

The OS Rewards Working Group of the EC offered practical recommendations that can be adopted by policy makers, funders, employers and researchers to promote the practice of Open Science. Funding agencies and research-performing organisations can work in tandem to ensure that researchers are recognised and rewarded for practising OS. It comprises a multidimensional criteria evaluation framework which assesses research quality in an OS context at each career stage. This career assessment matrix can be used for recruitment, career progression and funding grants to incentivise researchers to practise OS.

\textsuperscript{25} http://ec.europa.eu/research/swafs/pdf/pub_rri/rii_indicators_final_version.pdf
\textsuperscript{26} See the MoRRI report for the further development of RRI indicators: https://www.technopolis-group.com/wp-content/uploads/2018/05/Final_report_MoRRI.pdf
\textsuperscript{27} https://ec.europa.eu/research/openscience/pdf/os_rewards_wgreport.pdf
1c. Next-Generation Metrics (2017)\textsuperscript{28}

The EC Expert Group on Alternative Metrics offered insights into the relationship between OS and existing metrics. The group delved into alternative metrics (altmetrics) and showed their potential strengths and limitations. Finally, it provided recommendations for next generation metrics for OS and provided targeted recommendations for fostering OS, removing barriers to OS, developing research infrastructures for OS and embedding OS in society.

1d. Indicator Frameworks for Fostering Open Knowledge Practices in Science and Scholarship (2019)\textsuperscript{29}

The European vision for OS is to transition from the current scientific and scholarly system towards a more open and inclusive configuration of knowledge practices and infrastructures. Indicators for OS will greatly influence the form that OS takes, as they will influence decisions both in science policy and in knowledge generation. Building on the earlier report on Next-Generation Metrics for OS, the OS Policy Platform recommendations on next-generation metrics, and the Mutual Learning Exercises in a number of European countries, a new report provides frameworks for understanding and applying science and technology indicators, defined broadly. In addition, the authors report on state-of-the-art tools, such as the OS Monitor and the emerging European OS Cloud. They have consulted various stakeholder communities by presenting draft concepts at relevant conferences.

1e. Ghent University\textsuperscript{30}

As a more concrete example at the level of an institute, Ghent University has adopted eight broad principles that must guide every evaluation of research:

1. The choice of an appropriate evaluation method for research is in line with the objective of the evaluation.
2. The evaluation takes into account the intended impact of the research; strictly academic, economic, societal, or a combination of these.
3. The evaluation takes into account the diversity between disciplines.
4. For each chosen evaluation method, the simplicity of the procedure is weighed up against the complexity of the research.
5. The evaluation criteria are drawn up and communicated to all stakeholders in advance.
6. There are sufficient experts on the evaluation committee who are in a position to adequately assess the quality of the research.
7. The above principles are implemented by means of a smart choice of evaluation indicators and by adopting a holistic approach to peer review.
8. Any committee or policy measure evaluating research makes a best effort commitment to translate the above principles into practice.

\textsuperscript{28} https://op.europa.eu/en/publication-detail/-/publication/b858d952-0a19-11e7-8a35-01aa75ed71a1
\textsuperscript{29} https://op.europa.eu/en/publication-detail/-/publication/b69944d4-01f3-11ea-8c1f-01aa75ed71a1/language-en/format-PDF/source-108756824
\textsuperscript{30} https://www.ugent.be/en/research/research-ugent/research-strategy/research-evaluation.htm
1f. Dimensions

Most of the above reports agree that **whatever indicators are developed in the MSCA context, they should be responsible** and take the following dimensions into account:

- **“Robustness**: basing metrics on the best possible data in terms of accuracy and scope;
- **Humility**: recognising that quantitative evaluation should support – but not supplant – qualitative, expert assessment;
- **Transparency**: keeping data collection and analytical processes open and transparent, so that those being evaluated can test and verify the results;
- **Diversity**: accounting for variation by field, and using a range of indicators to reflect and support a plurality of research and researcher career paths across the system;
- **Reflexivity**: recognising and anticipating the systemic and potential effects of indicators, and updating them in response.”

*Diversity and Reflexivity* call for **continuous contextual awareness and an accompanying adaptation of indicators**, in a concerted effort with stakeholders (including civil society). This introduces flexibility in the means of evaluation to reflect the growing complexity and often differentiated contexts of specific research projects. What is more: we **need to train people so that they know how to responsibly interpret and work with these indicators**.

2. Portfolios and Narratives

**Humility** highlights the second group of options of **qualitative forms of assessment**, such as **portfolios and narratives that include attention to teaching, impact and leadership**. While the first two portfolios below focus on the individual capacities of researchers, the last example focuses on the level of the research unit.

2a. Royal Society Resumé for Researchers

The Resumé for researchers developed by the Royal Society **recognises that narrowly focused performance indicators can make it harder to see, reward or nurture the full range of contributions necessary to create the environments that enable excellence and steward it for the future**. Formulated through internal and external engagement, the Resumé comprises four modules, with guidance for the individual researcher, and space for a personal statement and personal details. Standard research CV outputs and success measures, such as publications, funding and awards, fit naturally within the modules. However, the tool allows these achievements to be contextualized within the researcher’s broader activities, through 4 guiding questions:

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33 https://royalsociety.org/topics-policy/projects/research-culture/tools-for-support/resume-for-researchers/
1. How have you contributed to the generation of knowledge?
2. How have you contributed to the development of individuals?
3. How have you contributed to the wider research community?
4. How have you contributed to broader society?

2b. Utrecht University Medical Centre Individual Portfolio

This individual portfolio was developed at the University Medical Centre of Utrecht as a replacement for traditional CVs focused on publications. Originating with the Science in Transition movement in 2013 led by Dean Prof. Frank Miedema and other academics, it is now used in hiring and promotion decisions for professors. It comprises personal details, a teaching portfolio, scientific portfolio, innovation and impact portfolio, leadership, development and collaboration portfolio.


The Standard Evaluation Protocol (SEP) was published under the authority of the VSNU, NWO and KNAW. The research unit subject to assessment provides information on the research that it has conducted and its strategy going forward. It does this by carrying out a self-assessment and by providing additional documents. The assessment committee evaluates the research based on the self-assessment, the additional documents, and interviews with representatives of the research unit during a site visit. The committee takes into account international trends and developments in science and society in its evaluation. In evaluating the quality and relevance of the research, the committee bears in mind the targets that the unit has set for itself. The assessment committee bases its evaluation on three assessment criteria: research quality, relevance to society, and ‘viability’ (the extent to which the unit is equipped for the future). It reports its opinion both in text (qualitative) and in categories (quantitative). It considers three further aspects: PhD programmes (including those at the national research schools), research integrity, and diversity. Here, the committee limits itself to a qualitative assessment. Finally, the committee provides an overall qualitative assessment of the research unit. The board of the institution receives the assessment report and acquaints itself with the research unit’s comments. It then determines its own position on the assessment outcomes. In its position document, it states the consequences it attaches to the assessment. The assessment report and the board’s position document are then published.

About MCAA

The Marie Curie Alumni Association (MCAA) is a global network open to any past or present beneficiary of the Marie Skłodowska-Curie Actions (MSCA). MSCA is one of the European Union’s flagship training initiatives providing grants to support researchers’ international and intersectoral mobility at all stages of their careers, across all disciplines. MSCA fellowships are among Europe’s most prestigious awards, aimed to support the best, most promising researchers. MCAA’s global membership consists of 14 000+ researchers and professionals with research backgrounds, organised into 34 chapters and 11 Working Groups. Website: https://www.mariecuriealumni.eu; Twitter: https://twitter.com/Mariecurie_alum

About NewHoRRIzon

NewHoRRIzon is a project that aims at further integrating Responsible Research and Innovation (RRI) in the research and innovation systems at national and international levels. The concept of RRI is an approach which intends to bridge gaps between science, research and innovation communities and society at large by fostering more inclusive, anticipatory, open and responsive research and innovation systems. In this frame, multiple stakeholders (from research, business, policymaking, education and civil society) are involved in research and innovation on the project and system level to better align its processes and outcomes with the values, needs and expectations of society.

It comprises a total of 19 Social Labs where stakeholders of different Horizon2020 programmes are gathered to reflect on RRI and develop concrete actions. Social Lab 3 on the MSCA brings together stakeholders from research — including current and former MSCA fellows, representatives from the MCAA, National Contact Points, principal investigators, project coordinators, evaluators, and RRI-related experts — to develop pilot activities which might help to implement elements of RRI in the practices and policies related to MSCA. This policy brief is an output of the RRI Career Assessment Matrix Pilot Action. Website: https://newhorrizon.eu/; Twitter: https://twitter.com/RRI_eu

37 The views presented here partly build on research and exchanges organized in the context of the NewHoRRIzon project, which has received funding from the European Union’s Horizon 2020 research and innovation programme under grant agreement No 741402. The opinions expressed in this document reflect only the authors’ views and in no way reflect the European Commission’s opinions. The European Commission is not responsible for any use that may be made of the information it contains.
Authors

Joshua B. Cohen, MSc. MA - PhD Candidate, Political Science department, University of Amsterdam, The Netherlands; RRI researcher at the NewHoRRlzon Social Lab on MSCA;
Dr. Fernanda Bajanca - MCAA Policy Working Group; Leader of MCAA Research Funding Policy Task Force;
Dr. Mimi E. Lam - University of Bergen, Centre for the Study of the Sciences and the Humanities, Marie Curie Alumnus and Member of the NewHoRRlzon Social Lab on MSCA;
Dr. Karen Stroobants - Vice-Chair Policy Working Group, Marie Curie Alumni Association;
Dr. Peter Novitzky - Postdoctoral Researcher, Wageningen University & Research, Netherlands. Member of the NewHoRRlzon Social Lab on MSCA;
Dr. Mattias Björnmalm - Vice-Chair Policy Working Group, Marie Curie Alumni Association;
Dr. Gábor Kismihók - Head of Learning and Skills Analytics Research Group at the Leibniz Information Centre for Science and Technology in Germany; Chair of MCAA Research Funding Working Group and leader of MCAA Career Development Policy Task Force;
Dr. Anne Loeber - Associate Professor, Political Science department, University of Amsterdam; Social Lab Manager at the NewHoRRlzon Social Lab on MSCA.