Most Significant Contributions Statement Guide

Definition

The most significant contributions (MSC) statement is a statement that allows researchers to communicate their achievements to evaluators during assessment decisions. The MSC is a DORA[*]-aligned evidence-based textual account of the researcher's key achievements, tailored to the audience evaluating it. This guidebook aims to assist researchers in identifying and communicating the quality and impact of their scholarly achievements. A well-crafted MSC will position the researcher's accomplishments in their scholarly context (field of study, research objectives, time demands, and community engagement demands).

Scholarly achievements may include:
* Peer-review publications, exhibitions, models, data, software, books, presentations, prototypes, community engagement, partnership with community, partnership with industry, Indigenous scholarship, policy briefs, policy reports, speaking at community events, community reports, patents, licenses, commercialization of technology, social entrepreneurship, etc.

The benefits of an effective MSC statement [2-5]

a. Highlight an individual's strengths and provide supporting information to position oneself as the ideal candidate for assessment decisions (e.g., hiring, tenure, promotion, grant, award, etc.).

    i. Note: The MSC statement has been included in a variety of competitions for many years. It will also be a core component of a proposed tri-agency harmonized CV, which is currently being piloted in various funding competitions (NSERC; CIHR), and may be tailored specifically to each funding opportunity or sponsor[1].

b. Discourages overreliance on purely quantitative comparison by incorporating qualitative information with the appropriate quantitative indicators (see examples below) while excluding journal-based metrics (such as journal impact factors) and most author-based productivity metrics (such as H-index) from the evaluation process.

c. Encourages a holistic and responsible assessment by providing the opportunity to articulate the potentially "hidden" elements of the quality and impact of a diverse range of research outputs.

How to write contributions into a narrative[3-5]

1. Don't convert your traditional Academic CV into a Narrative CV
2. Take your time to think broadly about your activities and achievements using the reflective questions below. These guiding questions will help you map out your expertise (strengths and qualities), and the scope of influence of your contributions.
3. Focus on quality, not just quantity
4. Consult with others
5. highlight contributions that tell the most memorable and relevant story
6. **Describe your role** and added value (e.g., conceptual formulation, design, analysis, leadership, see The CRediT tool) using active words (led, managed, developed).
7. Evidence your arguments with qualitative and quantitative methods and give specific details (See more information in the 'demonstrating evidence' section).
8. **Tailor the key messages** concerning the application's requirements and the type of audience that will evaluate it, including their priorities, requested format, and preferred language. Different audiences will be interested in different perspectives of scholarly achievements.

Mapping the quality and impact of your research [6-8]

Feel free to use only the subset of the guiding questions in each section <u>most applicable to you and the type of audience that will evaluate it</u>. **Note that norms and expectations differ between disciplines and therefore not all questions may be relevant across all researchers/applications, and you may want to go beyond these sample questions to describe your context and achievements.**

<u>**Section 1:**</u> Describe the research aim & objective.

What need or gap did your contributions address? Describe the importance and value of your contributions in the context of the impact category your work addresses (for example):

Scholarly Impact: Contributions to the generation of new ideas, tools, methodologies, or knowledge. *What is the importance and value of your contributions to theory, knowledge, or understanding?*

Societal Impact: Impact beyond your field and toward wider societal benefit. *What is the importance and value of your contributions to the public/industry/community groups/patience?*

Research Culture Impact: Impact on the broader scholarly community beyond your field and toward an improved research and innovation culture/ inclusive research culture. *What is the importance and value of your contributions to fostering a more innovative/ transparent/ inclusive/ equitable research culture?*

Section 2: Describe the research or creative process. Describe your research environment and explain how you addressed challenges associated with conducting research in your environment in terms of knowledge, skills, and time commitments.

Section 2a: What was your role in ensuring the work is high quality (e.g., credible, reproducible, ethical, legitimate, innovative/creative):

o *How have you contributed to an innovative/original/creative/robust idea, method, or design?*

o *What was your role in ensuring the reproducibility and verifiability of the method?*

o *What was your role in ensuring that unique ethical considerations were met? (e.g., what responsible and ethical principles or protocols did you help develop)?*

o *What was your role in ensuring transparency and accessibility of results and appropriate data stewardship?*

Supporting examples and evidence: Performing key experiments; Conceptual formulation of method and design; Performing key analysis; Synthesis of information across disciplines or topics; Supervising others; Acquiring funding to support the work; Developing (or helping to develop) ethical protocols/ research infrastructure/ professional practice/ creative practices; Creating open-source software or code; Technical courses to increase skills and capacity; Creating open workflow processes or open data repositories.
(See The CRediT tool (https://credit.niso.org/)

Section 2b: What was your role in ensuring the work has the potential to impact the broader community (Scholarly or Societal)? How have you sought to increase the potential for impact of your research outputs?

o   *How have you been involved in setting up new collaborations or partnerships? (Within or beyond your institution).*

o   *How have you identified which actors stand to benefit from this research?*

o   *How were the various actors engaged and at which stage (i.e., during the research design (co-creation), at dissemination, uptake, or implementation stage?*

o   *How did the interactions with/ input from the various actors or (potentially) interested parties influence the research design/process?*

o   *How were the values, concerns, knowledge systems, and perspectives of the (potentially) interested parties considered and respected?*

o   *How have you ensured you have opened up your research process and results to the broader communities/public?*

Supporting examples and evidence: Engagement with researchers in different fields or disciplines; Engagement with industry, private or public sectors, policymakers; Transfer of products; knowledge exchange/translation; Bringing in new collaborators (e.g., from other disciplines, clinical partnership, industry partnership, patient engagement, etc); Public outreach; Writing government papers; Creation of educational resources that are based on research findings; Integrated/advocated for diverse viewpoints and knowledge systems; Creation of media (i.e., blogs or videos), Social media engagement; Media interviews.

Section 3: Describe the significance and reach of your contributions **(choose your impact type, see example impact statements in 3C below):**

Scholarly Impact: Contributions to the generation of new ideas, tools, methodologies, or knowledge.

o   *How do the findings/ research outputs inform, influence, or support the scholarly community?*

o   *What are the intellectual outcomes?*

Supporting examples and evidence: how the findings led to new areas of research or led to new independent collaborations, how the findings challenged dominant thinking or approach in the field, how the findings enhanced theory or research method, whether the work was highly cited by scholars in your field, highly accessed by the scholars in your field, invitations to give talks/seminars or other presentations in conferences, whether you received invitations to contribute to edited collections/ review papers, whether you or your team received research grants/ awards/prizes based on the research findings; recognition from peers: e.g., quotes from peer-review reports, references in scholarly literature, acknowledgment of a publication or report, selection or appointment as a leader of a scholarly society etc (see more information in the 'demonstrating evidence' section below).

Societal Impact: Impact beyond your field and toward wider societal benefit.

o   *How do the findings/ research outputs inform, influence, or support actors outside the scholarly community?*

o   *How did the interactions with the various actors or (potentially) interested parties influence and/or change their knowledge, attitude, understanding, and behavior?*

o   *What are the health/ technological/ environmental/ cultural/ economic outcomes?*

Supporting examples and evidence: Influenced policy, affected professional practice, enriched public discourse, enhanced collaborations or partnerships, led to commercialization, translation of your research into policy (governmental or industrial), industrial/biomedical applications, launching spin-out companies, adoption of research findings to create new technologies, patents research findings, advanced SDGs, facilitated international collaboration with lower income countries, promoted societal equity and fairness.
Whether the work was highly accessed/cited by the public/ community/ industry/ patients; Explicit references in professional and public domains; Non-academic prizes or honors for scholarly achievements; Secondary appointments by organizations and institutions that are conceptually linked to the research or its impact (including requests for consultancy/advice).

> **Research Culture Impact:** Impact on the broader scholarly community beyond your field and toward an improved research and innovation culture/ inclusive research culture.
>
> *o   How do your contributions inform, influence, or support the research culture in the broader scholarly community?*
> *o   How have you contributed to the development of individuals?*
>
> Supporting examples and evidence: Positive contributions to the research team environment, contributions to training and mentoring, contributions to the research development of others, contributions to the research development of equity-deserving groups, contributions to advancing equitable and inclusive participation in the research ecosystem, contributions to open science and democratization of knowledge, contributions to networks or steering groups, whether you received positive feedback from trainees or acknowledgment, whether you received invitations within your sector to deliver seminars or other presentations, selection or appointment as a leader of a scholarly society.

Demonstrating evidence

Use appropriate quantitative and qualitative methods and indicators.

a. **Discipline-appropriate qualitative indicators, examples:**

   i. **Recognition from peers**: Quotes from (open) peer-review reports; acknowledgment of the influence of the scholarly output on the scholarly community.
   ii. **Use by the public:** Quotes from policymakers, patients, community members, testimonials, and acknowledgment of the influence of the scholarly output.
   iii. **Use in education:** the use or impact of research in primary, secondary, and tertiary education (especially outside the applicant's own institution).
   iv. **External recognition:**

   o **Academic prizes:** research grants awards, prizes awarded to individuals, or collaborative research projects.

   o **Financial and material support by society:** Funding and material resources allocated to research projects and researchers by civil-society funds, organizations, and institutions.

   o **Public prizes:** non-academic recognition for scholarly achievements, e.g. prizes or honors.

o **Secondary appointments** within civil-society organizations: appointments of researchers to organizations and institutions that are conceptually linked to the research or its impact (including requests for consultancy/advice).

b. **Discipline-appropriate quantitative indicators, examples**:

- **Document-level indicators** measure the use and uptake of individual publications based on the count of the citations received. Document-level indicators include but are not limited to the number of citations, field-normalized citation impact, and top X% highly cited paper. Please note that citation counts vary by the database used because the coverage of the database varies. Document-level indicators may also include the number of downloads of software or datasets.

- **Altmetrics indicator:** Altmetrics can measure "digital traces" of engagement with research on social media and other online platforms. Altmetrics include but are not limited to the number of mentions in social media, the number of citations by policy documents, government documents, and commissioned reports, the number of citations by patents, and the number of mentions in traditional news reports.

- DORA_indicators_guidance.pdf (sfdora.org)

Example statements

Impact Aim: One of my notable research project is a pioneering research[ref] that applies metadata analyses to publications, patents, companies, and industries to address the societal implications of science and technology and explores whether innovative and technological developments are inclusive for women, complies with the gendered innovations approach, and contribute to the success of the UN's sustainable development goals (SDGs).

Impact Claim: This project led to the discovery of the potent effects that technologies can have, and may in the future have, on society and introduces policy strategies to orient technologies toward equity and equality outcomes.

Evidence: My research [ref] has been of particular interest to the scientific community and has been featured in several media outlets, including Nature News: Engineering a gender bias | Nature

More examples of research stories from funders:

o **Research stories - NSERC (nserc-crsng.gc.ca)**
o **Health research in action: More stories - CIHR (cihr-irsc.gc.ca)**
o **Research Stories (sshrc-crsh.gc.ca)**

Supplementary

Example evidence

- **Recognition from the public:** "My research has [ref] been Recommended on XX research blogs and was described as "a breakthrough study on examples" by prominent genetics and evolution researcher Rosie Redfield". (Adapted from "Altmetrics Use Cases).

- Altmetrics examples using Scopus - PlumX :

  - "One of my notable papers, XXX, (or X% of my publications) caught the attention of policy decision-makers; it was (they were) cited in XX policy publications, including..."

  - One of my notable papers, XXX, (or X% of my publications) received attention from both international and national media; it was (they were) featured in X.

  - One of my significant works, XXX, (or X% of my publications) gained attention on social media; it was (they were) talked about on various platforms, such as X mentions in Twitter, Y mentions in Instagram, ...

  - One of my significant papers, XXX, (or X% of my publications) contributed to innovation; it was (they were) referenced by XX patents, both nationally and internationally.

- **Publication counts:** "I've published XX papers (indexed by Web of Science) over the last Y years. Among them, I was the first author on X papers, and the last or corresponding author on Z papers".

- **Citation counts:** "My research received significant recognition from peers, accumulating XX citations across YY publications. X% of my works were cited, with one publication garnering ZZ citations (Scopus)".

- **Citation rate:** "My research has been widely recognized, with a total of XX citations. On average, each paper receives X citations, surpassing the average for discipline Z (Web of Science)."

- **Relative citation impact / Field-weighted citation impact:** "My research has been widely cited, with XX total citations. In my field of Z, where paper receives Y citations on average, my work stands out with a relative citation rate of X (Scopus)".

- **Top X% most cited publication:** "Two of these papers [Ref 1, Ref 2] were among the top 10% most highly cited papers in Discipline X (Web of Science); OR This paper was among the top 5% most highly cited papers in Discipline X (Scopus)".

- o **International/national/institutional collaboration:** "As a researcher who collaborates with others, XX% of my publications were co-authored with fellow researchers. X% of these were solely with colleagues from Ucalgary. Y% involved collaboration with other Canadian researchers, while Z% resulted from international collaboration (Web of Science)".

- o **Collaboration with industry:** "Teaming up with industry partners, I worked with enterprise researchers to co-publish X papers, contributing to Y% of all my publications (Scopus)."

- o **Share of Open Access publications:** "I've published XX papers (indexed by Web of Science). These include X papers in Open Access journals and Y papers stored archived in university repository. These Open Access papers make up Z% of all my publications."

References

1. Tri-Agency Harmonized CV - CIHR (cihr-irsc.gc.ca)
2. NOR-CAM – A toolbox for recognition and rewards in academic careers
3. Values Framework – HuMetricsHSS.
4. Strinzel, M., Brown, J., Kaltenbrunner, W., de Rijcke, S., & Hill, M. (2021). Ten ways to improve academic CVs for fairer research assessment. *Humanities and Social Sciences Communications, 8*, 1-4.
5. Luxemburg National Research Fund –Narrative CV workshop
6. Making Narrative CVs work for your researchers
7. Narrative CVs | Research and Innovation | Imperial College London
8. Belcher, B. M., Rasmussen, K. E., Kemshaw, M. R., & Zornes, D. A. (2016). Defining and assessing research quality in a transdisciplinary context. *Research Evaluation*. http://doi.org/10.1093/reseval/rvv025
9. Ofir, Z., Schwandt, T., Duggan, C., and McLean, R. (2016). Research Quality Plus: A Holistic Approach to Evaluating Research. IDRC, Canada; Research Quality Plus Evaluating Research Differently
10. Impact Literacy Workbook
11. Strategy Evaluation Protocol 2021-2027
12. UNESCO Recommendations on Open Science
13. Wildgaard, L., Schneider, J. W., & Larsen, B. (2014). A review of the characteristics of 108 author-level bibliometric indicators. *Scientometrics, 101*, 125-158.
14. ICMJE | Recommendations | Defining the Role of Authors and Contributors

Additional resources

CIHR guidance for applicants
CIHR guidance for reviewers
CIHR FAQs about DORA
CIHR Examples of contributions and impacts by research pillar

NSERC guidance for applicants