

What are the Most Important Elements of Research Activity to Assess? The Proposal of Relational Goods

Cinzia Daraio¹, Antonio Malo², Giulio Maspero³, Ilaria Vigorelli⁴

¹daraio@diag.uniroma1.it

DIAG Sapienza University of Rome, Via Ariosto, 25 00185 Rome (Italy)

²malo@pusc.it, ³maspero@pusc.it, ⁴vigorelli@pusc.it

Pontifical University of the Holy Cross, via dei Farnesi 83, 00186 Rome (Italy)

Abstract

The reform of research assessment has become a pressing concern for policymakers and institutions worldwide. In response to recent initiatives—most notably the European Commission's 2021 scoping report and the Agreement on Reforming Research Assessment—this paper offers a conceptual and practical contribution grounded in virtue ethics and relational sociology. We argue that to fully realise the aims of reform, research evaluation must move to include the *relational goods* produced within and between research practices. These goods—such as trust, collaboration, mentorship, and epistemic generosity—are essential for the sustainability and ethical integrity of scientific communities. Building on MacIntyre's theory of social practices and Donati's relational sociology, we propose a tripartite framework that integrates internal, external, and relational goods. We then outline a methodology for operationalising relational goods using qualitative and computational tools, including natural language processing and network analysis. By emphasising relationality as a criterion of research quality, this paper contributes to a paradigm shift in research assessment—one that is oriented toward social cohesion, virtue cultivation, and the flourishing of science as a human and communal endeavour.

Introduction

There is a growing interest in reviewing the methods used to evaluate research in Europe and beyond. The call for reform arises from a widespread recognition that current evaluation systems—largely dominated by publication metrics such as journal impact factors, citation counts, and university rankings—often fail to capture the richness, complexity, and societal value of research activity. Over time, such narrow metrics have shaped academic behaviour in unintended ways, promoting a culture of “publish or perish”, undervaluing collaboration, diversity, and long-term societal impact, and limiting the visibility of contributions that do not align with mainstream academic norms.

In response to these concerns, the European Commission issued a scoping report in 2021 to lay the groundwork for rethinking research assessment in the European Research Area (ERA), stating that:

“The proposed way forward [to reform current research evaluation systems] consists of a European agreement that would be signed by individual research funding organisations, research performing organisations and national/regional assessment authorities and agencies, as well as by their associations, all willing to reform the current research assessment system. The aim is for research and researchers to be evaluated based on their intrinsic

merits and performance rather than on the number of publications and where these are published, promoting qualitative judgement with peer-review, supported by a more responsible use of quantitative indicators. The way in which the system is reformed should be appropriate for each type of assessment: research projects, researchers, research units, and research institutions. A reformed system should also be sufficiently flexible to accommodate the diversity of countries, disciplines, research cultures, research maturity levels, the specific missions of institutions, and career paths.” (European Commission, 2021, p. 3).

This report emphasised the need to move beyond mechanistic and quantitative models of assessment and instead adopt qualitative, contextualised, and “responsible” approaches. It proposed the creation of a European agreement to be endorsed by a broad coalition of research actors—including funding organisations, research-performing institutions, and assessment bodies—willing to commit to reforming how research is evaluated across disciplines and contexts.

This proposal culminated in July 2022 with the release of the Agreement on Reforming Research Assessment, a milestone document outlining a shared vision and a set of ten core commitments to support systemic change. The ten main principles or *core commitments* are (see also Curry et al. 2020, which lists 15 manifestos reporting lists of principles for research assessment):

- “1. Recognise the diversity of contributions to, and careers in, research in accordance with the needs and nature of the research;
2. Base research assessment primarily on qualitative evaluation for which peer review is central, supported by responsible use of quantitative indicators;
3. Abandon inappropriate uses in research assessment of journal- and publication-based metrics, in particular inappropriate uses of Journal Impact Factor (JIF) and h-index;
4. Avoid the use of rankings of research organisations in research assessment;
5. Commit resources to reforming research assessment as is needed to achieve the organisational changes committed to;
6. Review and develop research assessment criteria, tools and processes;
7. Raise awareness of research assessment reform and provide transparent communication, guidance, and training on assessment criteria and processes as well as their use;
8. Exchange practices and experiences to enable mutual learning within and beyond the Coalition;
9. Communicate progress made on adherence to the Principles and implementation of the Commitments;
10. Evaluate practices, criteria and tools based on solid evidence and the state-of-the-art in research on research, and make data openly available for evidence gathering and research.”

Among the most prominent principles are the need to: recognise the diversity of research outputs and careers; reduce reliance on journal- and publication-based metrics; center peer review in assessments; avoid inappropriate use of rankings; and

provide transparency, training, and accountability in the reform process. The Agreement has since gained significant traction and global resonance, giving rise to the Coalition for Advancing Research Assessment (CoARA, <https://coara.eu/>). The Coalition provides a platform for member organisations to collaborate, share practices, and collectively develop new tools and frameworks aligned with the Agreement's principles. The signatories of this Agreement agree on “the need to reform research assessment practices”. Their shared vision is that:

“the assessment of research, researchers and research organisations should recognise the diverse outputs, practices and activities that maximise the quality and impact of research. This requires basing assessment primarily on qualitative judgement, for which peer review is central, supported by responsible use of quantitative indicators. Among other purposes, this is fundamental for: deciding which researchers to recruit, promote or reward, selecting which research proposals to fund, and identifying which research units and organisations to support.”

As of 15 April 2025, 774 organisations worldwide have joined CoARA, reflecting a strong and growing consensus across countries, institutions, and disciplines that research assessment must evolve to better serve science and society.

The shift toward more holistic and inclusive evaluation practices is not merely technical but fundamentally ethical and philosophical. It invites a rethinking of what counts as “good research,” what values underpin scientific activity, and how excellence and impact are understood and rewarded. Our paper contributes to the broader reform movement by offering a novel conceptual lens: the centrality of *relational goods* within and across research practices.

We argue that research evaluation should move beyond focusing solely on tangible outputs—such as articles and patents—and instead recognise the social relationships, collaborative dynamics, and virtuous behaviours that sustain and enrich research as a human practice. Drawing from virtue ethics (MacIntyre, 1985) and relational sociology (Donati, 2010, 2019), we propose that assessing the quality of research should involve identifying and valuing the relational goods—such as trust, cooperation, mentorship, and epistemic generosity—that are essential for the flourishing of researchers, institutions, and the broader scientific community.

By integrating these philosophical and sociological perspectives, we seek to expand the normative foundations of research evaluation and to support the practical implementation of the CoARA principles. Our proposal invites stakeholders to see research not just as a competitive output-producing activity but as a cooperative and meaning-generating social endeavour, one that thrives through rich relational ecosystems.

Aim and contribution

This paper contributes to the ongoing reform of research assessment by proposing a conceptual and operational shift in how we understand and evaluate research activities. Our central thesis is that “relational goods”—the social, ethical, and cooperative dimensions that arise within and across research practices—represent the most significant, yet underappreciated, outputs of academic research.

Recognising and valuing these goods is critical for building an evaluation system that is not only technically robust but also ethically sound, socially responsive, and epistemically inclusive. We propose grounding research evaluation in a broader philosophical and sociological understanding of what constitutes “good research” and “good evaluation.” Drawing on the virtue ethics of MacIntyre (1985) and the relational sociology of Donati (2010, 2019), we identify research practices as cooperative social endeavours whose excellence depends not only on technical outputs but also on the internal and external goods they generate, especially the relational ones.

Our contribution is threefold.

1) We extend existing frameworks by adding a third dimension to the established dual model of internal and external goods of research practices. We define relational goods as emergent, shared, and often intangible benefits—such as trust, mentorship, cooperation, and academic solidarity—that both sustain and transcend individual research practices. These goods are not reducible to material outputs or formal achievements, yet they are indispensable for long-term research vitality, epistemic integrity, and societal relevance.

2) By offering a rigorous ontological account of relational goods, we clarify their status as real and assessable elements of research ecosystems. We frame their evaluation within a normative perspective that privileges virtue ethics and the flourishing of researchers, enabling the design of assessment systems that prioritise human development, social cohesion, and epistemic justice.

3) We propose concrete tools for identifying relational dynamics within research outputs and communities. Our proposed framework provides evaluators and institutions with clear indicators and practices to incorporate relational quality into research assessments.

Through this integrative approach, the paper aims to bridge the gap between high-level policy declarations and the everyday realities of scientific work. It encourages institutions to design evaluation processes that value what makes research sustainable, collaborative, and socially embedded, thus contributing to a new culture of assessment grounded in relational excellence and virtue-oriented practice.

Materials and methods

In this paper, we contribute to the discussion on the reform of current research assessment practices by continuing and extending the analysis on “good evaluation” of research introduced in Daraio and Vaccari (2020, 2021 and 2022). In order to do a good evaluation, one must first know what good research consists of and use good research as the *normative* component of good evaluation. Daraio and Vaccari (2020) define a good evaluation as one that considers and emphasises good research. Good research was defined as that which takes place within the research practices considered as “social practice” according to MacIntyre (1985). A good evaluation of research practices, intended as social practices à la MacIntyre, should take into account the stable motivations and the traits of the characters (i.e. the virtues) of researchers.

This research line enables research to be assessed in the light of broad human interests and to take into account not only the outputs of research but also the psychology and motivation of researchers.

Specifically, Daraio and Vaccari (2020) use the notion of “good evaluation of research practices”, characterising it as that evaluation that takes into account the constitutive elements of a “good research practice”.

Following MacIntyre, Daraio and Vaccari (2020) propose to define a good social practice as

“any coherent and complex form of socially established cooperative human activity through which goods internal to that form of activity are realized in the course of trying to achieve those standards of excellence which are appropriate to, and partially definitive of, that form of activity, with the result that human powers to achieve excellence, and human conceptions of the ends and goods involved, are systematically extended” (MacIntyre, 1985, p. 187).

Based on the definition of *good social practice*, they characterise a *good research practice* as

“any coherent and complex form of socially established cooperative human activity through which its participants, through the exercise of a set of refined human psychological qualities or virtues, contribute to the advancement of the body of knowledge that is constitutive of that practice in a way that has a positive impact on the lives of researchers and society as a whole”.

The most important elements of a good research practice (Daraio and Vaccari, 2020) are: i) internal and external goods and ii) the virtues of researchers. *Internal goods* of the practice are “high quality outcomes” of the practice that (a) can only be specified in terms of some specific practice (e.g. the way of conducting an empirical experiment; the practice of university teaching through lessons; the practice of interpretation of the text of classical authors in the humanities; etc.) and (b) can only be identified and recognized by the experience of participating in the practice in question. Those who lack the relevant experience are incompetent as judges of internal goods (MacIntyre 1985, p. 189);

(c) are typically achieved by those who follow the practice as an end in itself and enjoy the activities related to the practice;

(d) are typically achieved by those who experience gratitude towards teachers and mentors and justified anger towards those who betray our trust and violate our intellectual property;

(e) are typically achieved in conditions where one’s potential and development are not hindered by fear and anxiety.

According to MacIntyre, internal goods include three kinds of outcomes: i) the high quality in performance (e.g. ability to question a text; ability to ask relevant questions during an experiment; ability to motivate one’s research group or students in class, etc.); ii) the high quality of the outcome itself (e.g. articles, books, research projects,

discoveries, etc.); iii) the great value that comes from occupying a certain professional role in a research practice which contributes to the flourishing of researchers.

External goods are quality outcomes that are (a) only “externally and contingently attached” to the practice by the accidents of social circumstance and typically includes prestige, status and money, i.e. there are always alternative ways for achieving such goods, and their achievement is never to be had “only” by engaging in some particular kind of practice (MacIntyre, 1985, p. 201). And (b) when achieved, they are always some individual’s property – i.e. the more someone has of them, the less there is for other people. They are characteristically objects of competition in which there must be losers as well as winners. On the contrary, internal goods include the outcome of competition to excel, but also positive externalities. This means that their achievement is good for the whole community that participates in the practice.

There is a rich literature on the analysis of research groups or teams based on network techniques (see e.g. Wuchty et al. 2007; Wang and Barabási, 2021). However, as noted by Bezuidenhout (2017, p. 1):

“there is little literature that broadens out the scope of this analysis to consider the multidimensional nature of these research relationships. In particular, little is said about how scientists mediate their social interactions with peers during daily laboratory research. Less, indeed, is said about the tradition of ‘learning through example’ that characterizes most in situ laboratory training. All of these relational activities are of critical importance in sustaining and perpetuating the practice of science. It therefore becomes important to ask how we understand these relational activities directed towards building and sustaining relationships in different loci for the primary purpose of strengthening the practice of research and sustaining the traditions of scientific research”.

Bezuidenhout (2017, p. 1) proposes a virtue ethics approach to understand these relationships using MacIntyre. In another work, Bezuidenhout and Warne (2018) propose to follow a theological approach to analyze the participation to research practices using the notion of “callings”:

“Callings highlight the identification and examination of individual talents to determine fit occupations for specific persons. Framing science as a calling represents a novel view of research that places the talents and dispositions of individuals and their relationship to the community at the center of flourishing practices”.

Good scientists should have an *intuitive feeling* for their discipline, but they should also have a significant *personal satisfaction* from their work. They identify a key distinction between good and bad researchers considering personal joy in— and “fittingness” of—scientific occupations.

In this paper, we use philosophical argumentation to extend the conceptual and ontological framework currently adopted in the research evaluation reform debate. The prevailing direction is to adopt lists of principles of what evaluation should look like, detached from what research activity is. We start by defining what good research practices are, relying on MacIntyre, identifying good evaluation as that which is capable of enhancing good research practices. After that, we add the conceptual apparatus of “relational goods”, developed in the new relational sociology, to extend good research practices and good evaluations of research practices to the connections that are in place at meso and macro levels.

Relational goods are neither material things nor benefits, but they have an economic, social and political value, as well as a moral and educational value.

According to Donati (2019) relational goods are relationships at the interpersonal level to the well-being social welfare of an entire community (friendship, trust, cooperation, reciprocity, social virtues, social cohesion, forgiveness given and received, solidarity and peace, complex societal relationships, such as the working climate in organizations, the sense of security or insecurity in the area in which we live, the relationships between family and work).

The notion of relational good emerges when we realise that there are “other” goods that are neither available on the basis of private proprietary title, nor accessible to everyone indiscriminately. They are goods that do not have an owner, nor are they of the collectivity generically understood. They are the goods of *human sociability*, goods crucial for the existence of society itself, which could not survive without them. If these goods are ignored, removed or repressed, the whole social fabric is impoverished, maimed, deprived of lifeblood, with serious damage to people and the overall social organisation. Relational goods (e.g., trust, cooperation, social virtues, and good working climate) are goods that offer the possibility of existence to the internal and external goods of research practices. In this sense, they exceed and encompass research practices by adding an important social dimension. This is why citations which are one of the most widely used indicators to measure the impact and quality of research but also to analyze collaborative networks between countries, authors or funding sources are not a relational good, but knowing the relational goods that produce the research practices in which the citations originate could be useful to qualify the nature of the citations, whether they originate from good or bad research practices, i.e., whether they are the result of self-citation networks that are self-sustaining in a publish or perish process or are the result of a genuine and wealthy knowledge creation process.

Preliminary Results and Discussion

A fundamental aspect to consider in reforming current evaluation practices is the *normative value* of good research practices for making a good evaluation of them. In this perspective, it is necessary to assess whether the practice of the academic/scientific research under examination is actually a good practice: (1) excellence of its outputs; (2) the way in which they are achieved (in accordance with the rules that constitute the practice); (3) the impact that following the practice has on researchers’ life plans. But also, external goods should be taken into account.

Moreover, it is crucial to take into account researchers' virtues, i.e. stable traits of character that make it possible to grasp and pursue the internal goods of research practices. In order to take account of both internal and external goods, the evaluation of research practice must also be able to assess the ability of researchers to obtain them, i.e. the virtues of the participants in the practice. According to MacIntyre, virtue is

“an acquired human quality the possession and exercise of which tends to enable us to achieve those goods which are internal to practices and the lack of which effectively prevents us from achieving any such goods (MacIntyre, 1985, p. 191)”.

In this paper, we consider research practices as the departure point from which relational goods are built and developed. Donati (2010) shows that relational goods have their ontological reality and are endowed with the following properties: (i) they consist of *social relations* that are not reducible to mere interactions or transactions (and therefore different from market goods); (ii) these social relational goods are an *emergent effect* with respect to the contributions made by the subjects in the relationship; (iii) as relations, these goods possess a *reality sui generis*, that is, they have a certain structure, which is processual and changes over time; (iv) they are produced and enjoyed together by those who participate in them; (v) they bring benefits both to the participants and to those who share their reflections from the outside, without that *none of the individual subjects can appropriate them alone*. These characteristics differentiate relational goods from public goods, market goods and externalities.

A relational good refers to the good found in “being in a (certain) relationship”. It is therefore crucial to understand what “being in relation” means. This expression can be declined in two ways: either as “the fact of being in relation” or also as “the being that is (what there is) in relation”. According to Donati (2010)’s point of view, “being in relationship” is an expression that has three analytical meanings: (i) the fact that between two (or more) entities there exists a certain *distance* which, at the same time, distinguishes and connects these entities; (ii) that this relation exists in the sense that it has its *own reality* with its own causal powers; (iii) that such reality has its *own mode of being* (the mode of being that is in the relation). This perspective of social ontology demands to be translated into a sociological discourse, which is moreover amenable to empirical research.

Relational goods are conditions of possibility of research practice from which the internal and external goods of research itself flow. For example, the “organizational climate” of a research group plays an important role in the possibility of the research group to achieve the internal goods of the practice, excelling in the same, and also to achieve external goods in order to sustain and develop the practice itself.

The whole research practice should be analyzed, including “other characteristics” that connect the practice to its broader relational social dimension. In the quantitative evaluation we should consider: - A “relational accountability” of public investment when assessing *research performing organisations and research units* for funding

allocation; - A “relational project management” that enhances future research funding decisions when assessing *research projects* for funding allocation promoting; - Valuing the “relational aspects” of intellectual virtues when assessing *individual researchers and research teams* for funding allocation, recruitment and hiring promotion, professional development review, prize and award decisions.

We will discuss how the development of a *relational virtue ethics* can contribute to the identification of more relevant aspects of research activity to be evaluated and valued. We will try to show that relational goods, as “latent goods”, can be measured only indirectly, through observable proxies that might be found in the analysis of the virtues of researchers, groups and institutions that comprise them.

Finally, the characterization of the internal and external goods produced within the research practices taking into account the relational goods that generate the research practice will allow us to provide a *hierarchy* of the three missions of universities and research centers, that are teaching, research and the so called “third mission” (or knowledge transfer and impact on the society in general terms).

From Theoretical Argumentation to Operational Pathways: Towards a Concrete Evaluation of Relational Goods

In this section, we propose a concrete operationalisation of the concept of relational goods in research. This is intended to clarify how the abstract theoretical foundations of our proposal can be translated into tangible evaluative practices. In doing so, we aim to provide scholars, evaluators, and institutions with the tools to observe, interpret, and eventually assess the relational quality of research activity, both in its textual expression and in the wider social ecosystem of scientific collaboration.

The analysis of relational goods may be meaningfully approached through two complementary entry points. The first concerns the *internal structure of the scientific text*—how collaboration and cooperation manifest within the citation practices, authorship patterns, and narrative voice of the article itself. The second concerns the *broader external relations of the research activity*, such as inter-institutional collaboration, mentoring structures, and team governance. These two fronts—internal and external—reveal relational goods as they are embedded within and extend beyond individual research outputs.

Internally, we argue that relational goods can be discerned by analysing how previous literature is engaged. This requires more than counting citations; it necessitates an interpretive reading of the relational intent of each citation. A citation may be supportive, building upon a previous result and weaving it into a shared research lineage, or it may be oppositional, serving to challenge or distance the cited claim. While both are legitimate forms of scholarly engagement, their relational valence differs significantly. The cooperative quality of research is often higher when a work integrates and acknowledges the epistemic contributions of others in a generative and dialogical manner, as discussed in the virtue ethics approach proposed by Bezuidenhout (2017).

Another important signal lies in authorship patterns, particularly across generations. Co-authorships involving both senior and early-career researchers may reflect practices of mentoring and transmission of expertise, which we interpret as

expressions of magisteriality. Such forms of cooperation are central to the generativity of research groups and the sustainable reproduction of knowledge communities (Bezuidenhout & Warne, 2018). Likewise, ethical citation practices—such as acknowledging underrepresented voices or non-mainstream sources—may point to a virtue-oriented scholarly style, highlighting academic generosity and inclusiveness (MacIntyre, 1985; Daraio & Vaccari, 2020).

Externally, relational goods manifest in the enduring connections that research groups and institutions form with each other. Collaborative networks that are long-standing and rooted in mutual respect, rather than opportunistic partnerships, can be identified through bibliometric indicators such as the frequency and longevity of co-authorship between institutions. Cross-cultural and interdisciplinary collaborations, when grounded in shared intellectual aims, often reflect high levels of relational trust and openness (Wuchty et al., 2007; Wang & Barabási, 2021).

Mentoring networks, although often informal, can be traced through structured data on academic genealogy and project leadership. Furthermore, institutional practices—such as fair authorship distribution, shared leadership, and inclusive project design—serve as indicators of a virtuous research culture that nurtures relational goods. These practices have been discussed in recent sociologies of scientific collaboration, which emphasise the ethical and social conditions under which scientific excellence is pursued (Donati, 2019; Nowotny et al., 2001).

To make these dimensions empirically tractable, we propose the use of artificial intelligence and bibliometric tools to support analysis. Natural language processing (NLP) can be used to detect relational cues in citation contexts, distinguishing between citations that build upon, contrast with, or merely acknowledge prior work. Network analysis tools can map the structure and quality of co-authorship and collaboration patterns, revealing not only who collaborates but also how these collaborations evolve. Topic modelling can help identify the cohesion and epistemic continuity within research teams, while demographic inference methods can be used to detect generational patterns in authorship, pointing to possible mentoring dynamics.

This dual approach—attending both to the textual dimension of research and to its institutional-relational context—provides a structured pathway to identify, interpret, and assess relational goods.

To summarise the proposed operational framework, we provide below a summary table (Table 1) that organises the main components of our analysis. This table identifies key dimensions through which relational goods in research can be observed, the specific indicators relevant to each area, and the methodological tools that can support their assessment. It serves as a bridge between our theoretical arguments and their empirical implementation, illustrating how internal textual elements and external relational dynamics can be systematically analysed using qualitative and computational methods. The inclusion of AI-assisted tools highlights the feasibility of scaling this framework across diverse research contexts.

Table 1. Operationalizing Relational Goods in Research Evaluation.

Dimension	Focus Area	Indicators / Elements	Analytical Approach / Tools
Internal	<i>Citation Intent</i>	Supportive vs. Oppositional references; dialogical integration or critique	Qualitative citation context analysis (NLP)
	<i>Generational Dialogue</i>	Presence of intergenerational co-authorship; evidence of mentoring relationships	Co-authorship metadata; demographic inference
	<i>Ethical Citation Practices</i>	Inclusion of underrepresented authors or schools; epistemic generosity	Bibliographic diversity measures; citation context classification
External	<i>Collaboration Patterns</i>	Longevity and frequency of institutional collaborations; cross-cultural teams	Network analysis; co-authorship graphs
	<i>Mentoring Networks</i>	Academic genealogies, team continuity, senior-junior linkages	Project funding databases; ORCID data; CV parsing
	<i>Virtuous Group Practices</i>	Fair authorship ordering; inclusive decision-making; and leadership rotation	Institutional policies; team-level ethnographic study
Transversal AI tools	<i>AI-Supported Analysis</i>	Tools for identifying relational patterns from large-scale data	NLP (citation sentiment); network science; topic modelling

Conclusions

In this paper, we have engaged with the current movement toward reforming research assessment practices, offering both a theoretical deepening and a practical extension of the debate. While recent policy initiatives—such as the European Commission's scoping report and the Agreement on Reforming Research Assessment—mark an important shift in recognizing the limitations of metric-driven evaluations, we argue that a more fundamental rethinking is needed. This rethinking must begin by asking: what constitutes good research, and what does it mean to evaluate it well?

Our central contribution is the proposal to redefine the key outputs of research activity through the lens of relational goods. We suggest that alongside internal and external goods, relational goods—such as trust, collaboration, mentorship, epistemic

generosity, and social cohesion—are fundamental to the vitality of research communities and the broader scientific enterprise. These goods are not merely incidental to knowledge production; they are constitutive of research quality itself, supporting sustainable excellence, interdisciplinary dialogue, and the ethical formation of researchers.

Grounding our analysis in MacIntyre's virtue ethics and Donati's relational sociology, we have outlined a normative and ontological framework that highlights the ethical dimensions of research practice. In doing so, we have positioned research not only as a technical or productive activity but as a moral and relational practice, embedded in networks of cooperation, mentoring, and shared inquiry.

Importantly, we have translated this conceptual apparatus into a concrete operational framework, offering institutions, evaluators, and policymakers a practical path forward. Through internal indicators (e.g., citation intent, ethical citation practices, intergenerational co-authorship) and external indicators (e.g., collaborative networks, mentoring structures, team governance), we propose a multi-layered methodology that can help identify and assess the presence and quality of relational goods within research ecosystems. The integration of artificial intelligence tools, such as natural language processing and network analysis, further enhances the feasibility and scalability of this approach.

By embracing relational goods as core evaluative dimensions, we propose a shift from output-centred assessment to a relationally-anchored evaluation paradigm—one that emphasises sustainability, inclusion, and the long-term flourishing of researchers, institutions, and society at large. This perspective not only aligns with the principles promoted by CoARA and similar reform movements but deepens their foundations by offering a clear philosophical justification and an actionable roadmap.

Ultimately, we envision a model of research evaluation that values the virtue-driven and socially embedded nature of research, recognising excellence not only in individual achievements but also in the quality of relationships, the strength of collaborative cultures, and the generativity of academic communities. Such a model can enable a more just, reflective, and human-centred scientific enterprise—one in which evaluation serves to enhance rather than constrain the deeper purposes of research.

References

- Bezuidenhout, L. (2017). The relational responsibilities of scientists: (Re) considering science as a practice. *Research Ethics*, 13(2), 65-83.
- Bezuidenhout, L., Warne, N. A. (2018). Should we all be scientists? Re-thinking laboratory research as a calling. *Science and Engineering Ethics*, 24(4), 1161-1179.
- Curry, S., de Rijcke, S., Hatch, A. et al. (2020), The changing role of funders in responsible research assessment: progress, obstacles and the way ahead. Working Paper. Research on Research Institute (RoRI) <https://doi.org/10.6084/m9.figshare.13227914.v1>
- Daraio, C., Vaccari, A. (2020). Using normative ethics for building a good evaluation of research practices: towards the assessment of researcher's virtues. *Scientometrics*, 125(2), 1053-1075.

- Daraio C. Vaccari A. (2021), Perché è importante fare una buona valutazione della ricerca. La proposta delle virtù, *Bollettino della Società Filosofica Italiana*, gennaio-aprile 2021, pp. 45-59.
- Daraio C. Vaccari A. (2022), How should evaluation be? Is a good evaluation of research also just? Towards the implementation of good evaluation, *Scientometrics*, DOI 10.1007/s11192-022-04329-2.
- Donati, P. (2010). *Relational sociology: A new paradigm for the social sciences*. Routledge.
- Donati, P., Archer, M. S. (2015). *The relational subject*. Cambridge University Press.
- Donati P. (2019), *Scoprire i beni relazionali*, Rubbettino.
- Donati, P. (2021). *Transcending modernity with relational thinking*. Taylor & Francis.
- European Commission (2021), Towards a reform of the research assessment system: scoping report. November 2021, Bruxelles, ISBN 978-92-76-43463-4.
- MacIntyre, A. (1985). *After virtue*. Duckworth.
- Merton, R. K. (1973). *The sociology of science: Theoretical and empirical investigations*. University of Chicago press.
- Nowotny, H., Scott, P., Gibbons, M. (2001). *Re-thinking science: Knowledge and the public in an age of uncertainty*. Cambridge: Polity.
- Wang, D., Barabási, A. L. (2021). *The science of science*. Cambridge University Press.
- Wuchty S, Jones BF, Uzzi B (2007) The increasing dominance of teams in production of knowledge. *Science*, 316(5827):1036–1039.