Transforming Excellence? From 'Matter of Fact' to 'Matter of Concern' in Research Funding Organizations

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Abstract

'Excellence' is omnipresent in the research ecosystem but the focus on excellence is increasingly controversial. This paper contributes to the excellence debate through an empirical study of how notions of excellence are used in eight research funding organizations. Because research funding organizations are shaped by the excellence regime, and constrained by both governmental policy and scientific elites, funders cannot simply resort to a debunking critique and do away with excellence altogether. To navigate the ambiguous relationship to excellence, the approach to excellence is shifting from it being taken as a 'matter of fact' to a 'matter of concern' that needs to be unpacked and reconfigured. In mitigation strategies funders attempt to reconfigure excellence by patching, pluralizing and transforming their activities around excellence. We argue that a transformation of the research ecosystem is unlikely to happen when underlying assumptions about competition and meritocratic ideals are not also problematized.

Keywords: Excellence, Research Funding Organizations, Research Governance, Research Ecosystem, Science Policy, Matters of Concern

Introduction

The notion of 'excellence' has become an increasingly important part of the research ecosystem over the last 20 years. Excellence is mobilized in the context of performance-based research evaluation arrangements, project funding arrangements and individual career assessment processes. Ostensibly, the belief that funders should support excellent research or that a performance-based research evaluation arrangement should identify and reward excellence, seem incontrovertible. However, the omnipresence of excellence in the research ecosystem does not imply that there is consensus over what 'excellence' means or how it should be recognized. Excellence is enacted

in various ways, through bibliometric indicators and in peer assessment, both formally, in peer review panels, and informally, in everyday working life. What amounts to an excellence regime is also observed to create significant problems in the research ecosystem, of which there has been increasing discussion in recent years.

In this study, we explore notions of excellence specifically in research funding organizations, based on an empirical qualitative study at eight participating funders. Notions of excellence in research funding organizations have been underexplored in the academic peer-reviewed literature (Jong et al., 2021). Yet, these organizations play a key role in the institutionalization of excellence (Langfeldt et al., 2020). Scholarly attention to 'excellence' has mainly focused on (inter)national science policies such as performance-based research evaluation arrangements (Hicks, 2012; Thomas et al., 2020; Schneider, 2009; Auranen and Nieminen, 2010; Hou et al., 2012; Sivertsen, 2017; Cremonini, et al. 2018) and on how such performance-based research evaluation arrangements and, so-called, 'excellence funding' (Scholten et al., 2021) affect the epistemic practices of researchers (Laudel and Gläser, 2014; Cañibano et al., 2018; Degn et al., 2018; Hellström et al., 2018; Franssen et al., 2018; Franssen and De Rijcke, 2019; Borlaug and Langfeldt, 2020; Scholten et al., 2021).[1]

The notion of excellence provides an interesting lens on the research ecosystem, and the position of funders in particular, because it comes with the questions, as one of our participants put it: "Who owns that? Whose definition? Who shapes it?" In this paper we provide insight in the different ways in which notions of excellence figure in research funding organizations, as well as a reflection on the shifting positions of funders towards excellence. Research funding organizations have recognized critiques and taken the responsibility to address some of the problematic aspects of excellence. However, because research funding organizations are shaped by the excellence regime, and are limited by both governmental policy and scientific elites, research funding organizations cannot simply resort to a debunking critique and do away with excellence altogether. Moreover, they are often explicitly tasked with the implementation of 'excellence.' In their efforts to navigate this troubled relationship to excellence, the approach to excellence has shifted from it being taken as a 'matter of fact,' that is rather taken for granted, to a 'matter of concern,' that needs to be unpacked and reconfigured (Latour, 2004). We attend to the ways in which funders are raising and mitigating issues around notions of excellence, whilst at the same time continuing to undertake their role in the research ecosystem. We argue that many of the current mitigation strategies adopted by funders aimed at transforming excellence, leave underlying assumptions about competition and meritocratic ideals largely unquestioned.

Excellence in the research ecosystem

In the STS and science policy studies literature that engages with excellence, the concept is often approached as a socio-linguistic construct that is notably ambiguous, open-ended and vaguely applied. The success of excellence as a 'buzzword' may well be accounted for by its ambiguity and open-endedness. The notion of excellence has been referred to as a 'boundary object' (Star and Griesemer, 1989), for how its flexibility facilitates academic and policy actors to cooperate around it (Hellström, 2011). 'Excellence' plays this role specifically in the context of research funding organizations as funders operate between science policy and research communities (Langfeldt et al., 2020: 125). In controversies around the operationalization of notions of excellence in the development of research evaluation indicators, excellence becomes an 'essentially contested concept' (Ferretti et al., 2018: 732). Lamont (2009) considers the flexibility of the notion of excellence to be rather productive in the context of grant peer review panels. As a 'quintessential polymorphic term' excellence takes on temporarily shared meanings in peer review panels (Lamont, 2009: 159). This discursive flexibility also creates problems. It facilitates the use of the notion of excellence as a 'rationalizing myth' that obscures gender-bias in evaluation practices (O'Connor et al., 2020). The pretense that standards of excellence are neutral similarly upholds the 'myth of color-blind meritocracy,' which obscures racism and discrimination

in academic institutions (Mohamed and Beagon, 2019). The association of meritocracy with the idea of excellence is clear from this. Tensions between the ideas of excellence, meritocracy, equity and diversity are commonly observed in the literature (Deem, 2009).

A second strand of literature explores the history and trajectory of the notion of excellence in the research ecosystem (Hammarfelt et al., 2017; Flink and Peter, 2018). Notions of excellence have been used as a stratification device, applied at the level of research groups, universities and countries, by a need to legitimize public spending on research and the increasing competition for scarce resources (Münch, 2014). For example, the European Union's 2000 Lisbon Strategy mobilized the notion of excellence in its aim to make Europe "the most competitive and dynamic knowledge-based economy in the world".[2] The growing importance of excellence from the 1990s onwards gave rise to bibliometrics and performance indicators through which excellence could be measured (Tijssen, 2003; Sørensen et al., 2016; Ferretti et al., 2018). Bibliometric measurements of excellence are often presented as, or aspire to be, 'objective' or 'neutral' and are often used in standards and ranking systems characterized as 'global' or 'international'. However, these standards build on and convey a particular model of the research-intensive university and ideas about competition in the knowledge economy which originate from North America and Western Europe, and are prone to uphold inequities in the research ecosystem (Radosevic and Lepori, 2009; Antonowicz et al., 2017; Neylon, 2020). The notion of excellence became central to performance-based research evaluation arrangements, such as the UK Research Excellence Framework (REF) and Excellence for Research in Australia (ERA). The emphasis on excellence shaped the allocation of funding, for example in the form of the concentration of resources in Centers of Excellence and the proliferation of competitive funding programs specifically aimed to single out 'excellent' researchers (Scholten et al., 2021). Project funding has become an important marker of excellence, shaping career opportunities of early career researchers. As such, research funding organizations hold a critical position in the research ecosystem.

Critiques of the excellence regime are almost as ubiquitous as the notion itself. Critics have associated an emphasis on excellence with perverse incentives in the research ecosystem that drive undesirable behaviors, such as impact-factor chasing and goal displacement (De Rijcke et al., 2016; Moore et al., 2017). In addition, excellence initiatives and competitive funding have been considered to promote conservative decision making (Luukkonen, 2012), create Matthew effects (Bol et al., 2018) and reproduce existing inequalities (Van den Brink and Benschop, 2011; Neylon, 2020). The focus on excellence is critiqued for enabling a justification for hyper-competition in the research system, whilst at the same time being "completely at odds with the qualities of good research", such as open collaboration (Moore et al, 2017: 1). Calls have been made for the concept to be widened or 'pluralized' – by incorporation of more indicators, such as societal impact or levels of openness (Anderson et al., 2015; Tijssen and Kraemer-Mbula, 2018). Additionally, some have suggested scrapping the concept entirely – as it can be seen as a buzzword, performing a rhetorical function but lacking any intrinsic meaning (e.g. Neylon, 2020).

We aim to inform the excellence debate by presenting an empirical study of how notions of excellence are used in research funding organizations and explore the possible futures of excellence. We zoom in on where and how notions of excellence are used in the participating funding organizations and what these notions in their different use contexts *do*. This sheds light on the affordances of the notion of excellence, or what performative role 'excellence' plays in the different activities of funding organizations. Critical approaches to excellence skip over its affordances to emphasize its limitations and thereby suggest excellence can be dropped without costs. However, understanding its affordances is important for any attempt to re-think excellence in research funding organizations and the wider research ecosystem.

Case study sites and methods

The eight research funding organizations participating in our study were the Australian Research

Council (ARC), Austrian Science Fund (FWF), Canadian Institutes of Health Research (CIHR), European Molecular Biology Organization (EMBO), Fondazione Telethon (FT), Michael Smith Health Research BC, Swiss National Science Foundation (SNSF) and Wellcome Trust (WT).[3] These organizations are strategic partners in the Research on Research Institute (RoRI), a consortium launched in 2019 of which Wellcome Trust was also a founding partner together with the University of Sheffield, Leiden University and Digital Science.[4] RoRI brings together actors in the research ecosystem to not only share knowledge but also generate knowledge through collaborative research on research projects. The Transforming Excellence project, on which this paper reports, is one of the six pilot projects that made up the first phase of the RoRI program. The topic of excellence was collectively identified as one of the urgent problems in the research ecosystem, as faced by funders.

The participating funders are geographically based in Western Europe (EMBO, FT, FWF, SNSF), the United Kingdom (Wellcome Trust), Canada (CIHR, Michael Smith Health Research BC) and Australia (ARC). That means this study is no exception to the fact that research on excellence initiatives has centered on North American and Western-European contexts. Describing the case study sites along these lines emphasizes similarities between organizations and also the limitations of this study in terms of accounting for regional and economic diversity. However, there are also considerable differences between our case study sites, for example in terms of their relative size, resources, independence and scope. Fondazione Telethon and Wellcome Trust are both charitable foundations and thereby independent of national government funding, EMBO is a European organization financially supported by its member states, the ARC, CIHR, FWF and SNSF are tasked with the distribution of national government research funds, while Michael Smith Health Research BC in Canada operates at the provincial level in British Columbia. There are differences between funders, and within their different programs, of different levels of funding and different success rates for applications. That means different levels of competition. For example, Wellcome reported in 2021 that its overall grant portfolio in 2019/20 was £5,150m and 11% of applications received were successful. The FWF reported a success rate of 21,9% in 2021 with a portfolio of €256m. The ARC reported $806,2m funded grants in 2020-2021 with a success rate of 20,2%. Between ARC programs the success rates ranged from 10% (Australian Laureates Fellowships) to 50% (Industrial Transformation Research Hubs). The breakdown demonstrates that also within funding organizations, budgets and success rates differ. In terms of scope, four of the research funding organizations are focused on health research (CIHR, FT, Michael Smith Health Research BC, WT), with Fondazione Telethon most specific in its mission to find cures for rare genetic diseases. The ARC, FWF and SNSF are federal funding organizations that all cover a wide range of disciplines. Operating in settler-colonial contexts, the Canadian and Australian funders have put matters around indigenous knowledges and communities on their agendas, something we did not encounter as an explicit concern in the other participating funding organizations.

Moreover, there is also variety *within* these different organizations in how sub-sections of the organization relate to and shape notions of excellence. Treating the organization as a coherent unit of analysis would create the danger of smoothing such differences. We encountered evidence of different notions of excellence co-existing in single organizations and this giving rise to discussions and sometimes tensions as part of their internal conversations on the topic. The differences *between* and *within* the eight participating funding organizations are manifold and too complex to allow for a comparative analysis between organizations. To grapple with these complexities, while still making a meaningful analysis across the funders, we focused our study on 'instances of excellence' as our unit of analysis, rather than organizations or individuals within organizations. Instances of excellence are particular situations in which a notion of excellence becomes relevant in the work of a research funding organization. Together with the key contacts at the funding organizations we developed a case study protocol to guide the data collection process that took place between

October 2020 and June 2021. We asked the participating organizations to submit at least three instances of excellence and deliberately left open what excellence could be or mean, although we expressed a preference for the selections from a single organization to represent different kinds of instantiations of excellence for their organization. Participating funders themselves identified their instances, such that their selections reflected ideas and operationalizations of excellence within their organization. They were able to submit the number of instances they thought appropriate. By not defining what we were looking for beforehand, we aimed to maximize variety in the submissions and to allow for surprise and openness. Our analysis then does not reduce the complexities we encountered to a single definition or measure of excellence, but rather emphasizes the multiplicity of notions of excellence in practice (Mol and Law, 2002).

Amongst the materials that the data collection exercise resulted in are publicly available documents such as strategic plans, mission statements and program guidelines. Some organizations also shared internal documentation with us that reflected the development of new conceptual frameworks, strategies and criteria. We received a total of 28 instances of excellence from the eight funders, with between two and six submissions per organization. This added up to over 90 documents ranging between one and over a hundred pages each, with some contextualizing commentary provided via the online submission forms. Table 1 provides a sense of the variation in resources that we received. Our aim was not to draw direct comparisons between organizations on particular issues, meaning the fact that not all organizations submitted documentation in the same categories is not a problem. Documentation across different organizations is varied, in any case, meaning that a direct comparison of documents across organizations was unlikely to be possible. In addition, the categories we have assigned are somewhat general based on the documents we received. The category 'research evaluation', for example, comprises both the documents we received from the ARC in relation to the Excellence for Research in Australia national evaluation procedure and a report submitted by MSFHR about impact measurement in health research. Our open approach to the data collection, involving inviting participants to submit documents they regarded as important, had the advantage of resulting in some surprising submissions, such as the appearance of notions of excellence in the legal acts on which some organizations were founded. It also gave us the unique

Table 1. Range of submitted instances of excellence.

	Statutes or legal act	Mission and strategic statements	Grant programs, guidelines and scoring systems	Research evaluation	Knowledge transfer	New excellence related frameworks	Other
Australian Research Council			X	X			
Austrian Science Fund (FWF)			X			X	X
Canadian Institutes of Health Research	X	X	X				X
Fondazione Telethon	X	X	X	X	X		
EMBO	X		X				
Michael Smith Health Research BC		X	X	X	X		X
Swiss National Science Foundation	X		X			X	X
Wellcome Trust						X	X

opportunity to analyze documentation in relation to ongoing work around the development of new assessment criteria in Wellcome Trust and SNSF.

In addition, we conducted two interviews at each case study site. The semi-structured interviews contained general questions around excellence asked of every participant and more specific questions about each organization and the instances of excellence around which the interviewee had expertise. Preliminary analysis of the documentation informed the design of questions. Participants held different positions at funding organizations: (chief) scientific officer, strategy director, science policy director, diversity and inclusion advisor, research monitor, vice president of research, director of college of reviewers and council chair, amongst others. Participants all agreed to take part voluntarily but were suggested by their organization as suitable because of their roles and/or expertise. In many cases, they had led or contributed to initiatives in their organization related to excellence. Nearly all interviewees had a PhD and had research experience up until at least the postdoctoral level. This blurs the strong distinction that is often made between funders and researchers. Dissatisfaction with the current research ecosystem was for some of the participants a reason to make the career change from academic research to working for a research funding organization. They viewed this as an opportunity to contribute to changing the system from within. The hard distinction between funders and researchers does not work in other ways in our research, not least because many funding agencies bring researchers into key aspects of their governance and work – as, for example, members of advisory boards, panel members, and peer reviewers – meaning there is often a blurring of boundaries between funders and their research communities.

Participants agreed to participate on the basis of personal anonymity, therefore we have not linked particular role titles with quoted extracts of interviews below. Adding such information would risk compromising anonymity, especially in the case of people in higher or very specific functions that only exist in a single participating organization. Accordingly, the present study does not compare or generalize ideas around excellence between different employment positions or levels of seniority.

Both people and documents engage in 'modification work' around an issue (Asdal, 2015). Following Asdal's material-semiotic approach to the analysis of documents, we asked: What does a document do to the issue? Or more specifically, what becomes of excellence in the documents and interviews? The documents and interviews were of equal importance to our focused analysis of established uses of 'excellence' and strategies to mitigate concerns. We used Atlas.ti for coding the materials. We followed a thematic analysis approach in which we analyzed the materials inductively, coding initially in an open way, and then developing a focused set of themes from categorized codes (Braun and Clarke, 2006). This enabled us, for example, to identify in the data different *uses* of excellence in the different types of instances – uses which we categorized as 'descriptive', 'reifying' and 'aspirational' and which we explain in the following section. We also identified various *concerns* related to excellence, such as those around equity, diversity and inclusion (EDI), metricized approaches to excellence, and the responsibility of funding organizations in the research ecosystem that figure in the discussion of the shift of excellence from 'matter of fact' to 'matter of concern'.

Uses of excellence in research funding organizations

Our analysis of the submitted instances of excellence shows that, even within organizations, notions of excellence appear in varying ways. In this section of the paper, we elaborate on prominent examples and address affordances and limitations. This section highlights how excellence plays a generative role in organizational practices. We do this by attending to what excellence does, in addition to what it means. The presentation of instances in what follows ('Excellence in criteria and scoring systems' etc.) does not aim to provide a complete or exhaustive picture of all the instances of excellence submitted by the participating organizations. It is, rather, meant to communicate the variety of places where notions of excellence may become relevant in research fund-

ing organizations and the different forms that excellence takes within and across the organizations (Mol and Law, 2002). The *uses* of excellence – which we identify as 'descriptive', 'reifying' and 'aspirational' – are explicated below and we show how they work across different instances of excellence. We also show how excellence is embedded in *activities*: activities we identify, and which are discussed below, comprise: ranking, valuing, positioning, validating, and mobilizing.

Excellence in criteria and scoring systems

Almost every participating organization submitted their review criteria and/or scoring system as an instance of excellence. In these materials excellence was used in a descriptive way as an adjective or adverb in the form of 'excellent', for example with reference to the applicant's need to have an 'excellent track record' to be eligible for funding. In scoring systems 'excellent' often figured as one among 4-6 ranks. Figure 1 presents a rating scale used by the Australian Research Council. The scale does not only provide a classification system but also guides reviewers in how to spread the proposals over the scale by the suggested percentage of the total of proposals that should fall in each category.

In the scoring system of most organizations 'excellent' was not the top but second rank. Here we could speculate about terminological inflation, with 'outstanding' becoming the new 'excellent'. However, in interviews, the increasing difficulty to differentiate between high-scoring proposals in a context of limited resources and many qualifying applications, was mentioned as driving this proliferation of ranking categories. The guiding percentages in the ARC scale likewise attempt to manage the large number of incoming proposals that are already considered to be of good quality. An excellent mark thus values a proposal in relation to other proposals and the specific assessment instrument.

Notions of excellence in review criteria and scoring systems play a role in the process of selecting 'the best of the best' for funding. To guide the decision-making process, funding organizations provide applicants and reviewers with a set of criteria to be used in the evaluation of proposals. In the participating funding organizations, these sets of criteria differed in the extent to which they outlined in detail notions of excellence: from bullet points listed in a form, to extensive explanations and specific questions in reviewer handbooks. In some cases, the same criteria were used across all programs, in other cases the criteria were (partly) program specific. The sets of criteria figure as operationalizations of "excellence" and are useful as such, regardless of the term excellence itself:

> So I think the term excellence in and of itself isn't useful. But I think the idea that you can clearly articulate what it is you mean by excellence, or what it is, by whatever term you mean, is useful. (Interview 15)

The interviewee downplays the significance of the term excellence as it could be interchanged with 'whatever term'. It is the assessment criteria that provide contours for what excellence looks like for a particular organization and that set the perim-

Assessment criterion	(A) **Outstanding** Of the highest quality and at the forefront of research in the field. Approximately 10% of Applications should receive scores in this band.	(B) **Excellent** Of high quality and strongly competitive. Approximately 15% of Applications should receive scores in this band.	(C) **Very Good** Interesting, sound and compelling. Approximately 20% of Applications should receive scores in this band.	(D) **Good** Sound, but lacks a compelling element. Approximately 35% of Applications are likely to fall into this band.	(E) **Uncompetitive** Has significant weaknesses. Approximately 20% of Applications are likely to fall into this band.

Figure 1. Scoring system Australian Research Council in the 2020 Assessor Handbook.

eters for competition. Although the term excellence itself may have limited descriptive value, it does give shape to the activities of research funding organizations, specifically those of *ranking* and *valuing*.

Excellence in mission and strategic statements

In the submitted materials 'excellence' occasionally appeared as if it were a thing in itself. Such reifying phrases included: 'building a reputation for excellence', 'being committed to excellence', 'funding excellence', 'measuring excellence,' and were found on websites and in other public documents. In the following strategic statement excellence becomes instrumental to other goals, such as strengthening the national health care system:

> By funding research excellence, CIHR supports the creation of new knowledge and its translation into improved health for Canadians, more effective health services and products and a strengthened Canadian health care system. (CIHR 2020-2021 Departmental Plan: 5)

This iteration not only puts the funder in a unique position to identify excellence, it also emphasizes the mediating role that the organization plays between science and society. What excellence is, however, remains rather elusive.

The following reflection about the use of the notion of excellence in another organization's mission statement further emphasizes its rhetorical qualities:

> The notion of excellence is explicitly used in the Mission statement of [funding organization]; specifically, the term "excellent" is the main adjective for the word research, i.e. "excellent research". Indeed, excellence is the primary feature a research project should meet to enter a [organization] funding program, in light of its mission… Excellence is hence used to reinforce the notion that [organization] would support the best scientific research on [topic], being outstanding research the one able to achieve high levels of performance and meet or even exceed the expectations of all stakeholders... (Instances of excellence form)

Rhetorically, excellence is 'used to reinforce' the message that the organization is highly selective in its funding decisions. This conveys that a grant from the organization comes with status – a kind of stamp of excellence. But excellence is not only mobilized as a term that qualifies people, projects or organizations. In mission statements, excellence also took an aspirational form. For example, as a guiding principle that affects every aspect of the organization:

> …excellence is an overarching principle. So whatever we do needs to be excellent. […] And so this is something that we take care of by continuous comparison with the international scenario. (Interview 7)

As an 'overarching principle' excellence addresses a commitment to strive for ongoing improvement. Excellence is here not a fixed end point that can be achieved. It rather appears as a moving target that is defined and redefined, for example through benchmarking, by "continuous comparison with the international scenario." As a moving and (re-)shapeable target, excellence can be made to guide organizational processes, bringing actors in and around the organization together, in conversation or moving towards a shared goal. Excellence is thereby presented as desirable, something to strive for. The idea that 'everybody wants to be excellent' holds strategic value:

> Yeah, you get sold that concept quite easily to politics. Everybody will be excellent, wants to be excellent, and therefore it is more a political term and you have to reflect on that and make sure that it is not overstressed. (Interview 10)

This reflection on the strategic importance of the notion of excellence in convincing the national government to accept new funding arrangements, resonates with analyses of excellence as a buzzword. However, this rhetorical function is only one amongst several ways in which excellence is used in research funding organizations. It plays a role in *positioning* the funding organization in the wider political landscape and the supported research in the research ecosystem.

Excellence in the legal act and statutes of an organization

'Excellence' appeared in the legal act or statutes of three of the participating funders. The SNSF legal act prescribes that the organization's focus is on the funding of "excellent research projects" and that "within its remit and responsibilities, it decides on suitable instruments and the type of funding." The legal acts or statutes leave rather open what 'excellent research' looks like and how it is to be recognized, although the legal act behind CIHR does state that robust research should be "based on internationally accepted standards of scientific excellence and a peer review process". The EMBO statutes state that for membership "The primary criterion for consideration by the committee is scientific excellence." Such iterations leave a lot of space for what excellence may become.

A scientific officer explained how the mention of excellence and the vagueness around it in the legal act was strategically mobilized to prompt discussions inside the organization about how to define the research that the organization wants to fund:

> But what we can do is, and we at the administrative offices do, is we use this now in the discussion, to point out this is in the law that enables us to do what we do, so this is relevant to everyone's work. And again point to how vague it is. So it even is in the law. They don't define it, because that is not how a law like this should work. But in some way we define it every day so we should at least be able to explain what it means, from our perspective. (Interview 14)

The obligation to engage with the notion of excellence was put to work to engage people in the process of developing a new 'excellence model' for the organization. The resulting model was intended to guide several processes, including the internal evaluation of the assessment criteria used in the funding programs. The case demonstrates both how the work of a funder is enabled by notions of excellence and how a funder shapes notions of excellence through its activities. The notion of excellence is flexible enough to allow for differences between organizations to be articulated: to "explain what it means from our perspective." Thus, excellence plays a role in shaping the identity of the organization as it positions itself in the research ecosystem. This does not necessarily mean that the funder embraces notions of excellence:

> …we are making a conscious effort to not use the word 'excellence' just because of all the connotations that can come with it. But I think it is still, we want to fund, you know, 'excellent research' fundamentally. But how we view that, is shifting. (Interview 15)

Thus, while the notion of excellence is *validating* the work of research funding organizations, it is also *mobilizing* people to imbue it with (yet another) meaning that is likely to contribute to securing its continued relevance.

In this section, we have highlighted how notions of excellence are ingrained in funding organizations and appear in descriptive, reifying and aspirational forms. As a label, an object and an ideal, the notion of excellence becomes multiple, with each of these versions doing different things in the work of funding organizations (Mol, 2002). We have emphasized the productive role of notions of excellence as they shape, and take shape in, activities of ranking, valuing, positioning, validating, and mobilizing. The way that a focus on excellence has shaped the research ecosystem over the past decades has come under scrutiny. Excellence has become associated with competition, selectivity and status. Critiques have addressed how 'the excellence regime' has encouraged hyper-competition, cumulative advantage and hence reinforced inequalities in the research ecosystem (e.g. Bol et al., 2018; Moore et al., 2017; Van den Brink and Benschop, 2011; Neylon, 2020). Excellence has gathered 'bad connotations' as one participant put it. The next section addresses how research funding organizations navigate a position between affirmation and critique in looking to mitigate some of these issues.

'Excellence' from matter of fact to matter of concern

Intuitive ('I know it when I see it') understandings of excellence, on the one hand, and excellence quantified as publication metrics, on the other,

have both thoroughly shaped the research ecosystem and have become embedded in review and evaluation practices, including those related to the allocation of funding. Both intuitive and metric approaches to excellence have been critiqued, for being too subjective and too narrow respectively, and marked as things to move away from. Latour (2004) points out how such debunking critique risks leaving the matter of critique, as a matter of fact, untouched. He proposes 'matters of concern' as a conceptual tool to not perform distancing critique, but to instead get closer to it. Latour invites a form of critique that rather than subtracting reality from, adds reality to the matter by showing how it is assembled and how the actors involved are affected by it. Instead of rendering excellence meaningless and moving away from it, approaching excellence as a matter of concern requires one to engage with it, in order to explore how it is made up and maintained.

We noticed such a shift in approaches to excellence amongst the participating funding organizations. Excellence seems increasingly to have become approached as a matter of concern, instead of being taken for granted as a matter of fact. Many funders no longer accept 'I know it when I see it' and reified versions of excellence, but are actively questioning: what do we mean by excellence? What qualities are we looking for in a research project? How do we give shape to what we want to consider 'excellent'?

> …up until certainly when I arrived, but probably even a little before that, maybe when there was some turnover in [leadership] as well, the idea that excellence was something that you know, 'I know it when I see it' or 'these are very obvious things,' was just starting to be questioned. (Interview 5)

Destabilizing the matter-of-factness of excellence also involves unpacking how notions of excellence and more-or-less tacit perceptions of what an excellent researcher looks like have shaped the allocation of funding and the distribution of career opportunities in the research ecosystem. Questioning excellence not only disassembles it but also opens it up for new associations. The notion of 'excellence' has for example become associated with inequitable practices in the understanding of many of our participants. Drawing such connections adds reality to excellence, it substantiates and transforms our perception of 'excellence.' At an affective level excellence is no longer a 'hurrah word' (O'Connor et al., 2020), it raises discomfort too. As one participant put it: "I think the word excellence has a lot of negative connotations that, you know, it sort of raises antibodies in a lot of people, myself included."

Research funding organizations hold an interesting position in the excellence debate. They cannot simply do away with notions of excellence. As we have seen, in some cases the relation to excellence is even explicitly inscribed in the legal mandates of the organization. Nor can they resort to distancing critiques of excellence. Funding programs thrive on the excellence regime, in the sense that organizing the selection of the best of the best through competition is one of the core activities of funding organizations. At the same time, precisely these practices are considered to contribute to the negative issues associated with a focus on excellence, such as hyper-competition and concentration of resources. Funders are also acutely aware of the undesirable consequences for equity in the research ecosystem, as these are observed in funding decision making processes and evaluations. This puts funders in a rather difficult position between affirmations and critiques of excellence, which sometimes also played out at a personal level:

> These notions of research excellence, this operationalization of a concept that was so nebulous but, and it was being used by well-intended people for the most part, but really holding others back. And that hit my personal values. So although I have been participating in the conversations, and operationalizing it and evaluating it and using all of the limited methods, I came to a point in my professional career knowing that it was flawed, thinking: how can I be complicit to doing this? (Interview 12)

The interviews showed that, as Montgomery and colleagues (2017: 9) noted, "critique and complicity need not be mutually exclusive, but can be the start of a productive dialogue." Approaching excellence as a matter of concern in research funding organizations means fostering a critical

attachment to excellence. The participant gives us an idea of what that may look like:

> I doubt we will get rid of the idea of excellence in the community. I think it will be a matter of trying to redefine what it is and how it is used, as well as where it has the potential to create harm and inequities. (Interview 12)

Thereby, research funding organizations are considered to have a certain responsibility in addressing and mitigating the concerns associated with excellence. We observed different ways of taking up this responsibility in the strategies by which research funding organizations aim to redefine understandings of excellence. In the remainder of this part of the paper, we characterize some of the main ways in which mitigation strategies are put to work as *patching*, *pluralizing* and *transforming* excellence.

Patching

One key mitigation strategy is attempting to amend existing practices – a process we call 'patching'. Much of this focuses on proxies used for excellence around publications: publication counts, the H-index, citation metrics and journal impact factors. Such publication metrics present a version of excellence that is increasingly considered to be too narrow and flawed (Vessuri et al., 2013). The emphasis on bibliometric indicators in research evaluation has been associated with undesirable behaviors (De Rijcke et al., 2016), leading to concerns around research integrity. It may form an incentive for researchers to take a 'short cut':

> One thing is that if you put too much effort on excellence, the competition becomes very, very stiff. And some scientists may then be lured into taking shortcuts, maybe squeezing their data, maybe even inventing data. And in some countries, China, for instance, they get a sort of a salary bonus if they get papers published in *Nature*, *Science* or *Cell*. Which is also sort of creating a milieu which could lead to misconduct or the temptation to. The stakes are very high. (Interview 6)

As this participant goes on to comment, a research funding organization can and has to respond to this tendency. For example, by offering obligatory ethics courses for early career grant recipients. But also, by playing a leading role in the investigation of cases of scientific misconduct and applying sanctions against offenders.

In the submitted materials and interviews, concerns about the overreliance on publication metrics, were sometimes followed by a reference to the San Francisco Declaration on Research Assessment (DORA). Such as in the guidelines for applicants for an EMBO fellowship:

> Do NOT indicate the journal impact factor or any other metrics, commentaries, highlights or citations in the publication list. EMBO is a signatory of the San Francisco Declaration on Research Assessment (DORA, https://sfdora.org), which recommends "not to use journal-based metrics, such as Journal Impact Factors, as a surrogate measure of the quality of individual research articles, to assess an individual scientist's contributions, or in hiring, promotion, or funding decisions". (EMBO Postdoctoral Fellowship Application Guidelines)

Except for the Australian Research Council, all research funding organizations that participated in the study were signatories of DORA. Signing DORA was presented as a way to demonstrate a commitment to moving away from metrics-based operationalizations of excellence. But what does that mean in practice? For one organization that recently signed DORA, this involved intervening in reviewer panel discussions:

> …H-indexes, journal impact factors, types of journals, et cetera, et cetera. [Reviewers] use this as proxy surrogate measures for excellence. And the challenge of the last few weeks was just getting them not to utter the words. Like you could literally see them on camera stumbling over the words because we banned the word Journal Impact Factor, H-Index, et cetera. And if it came up, the chair or a member of staff would turn on their camera and say, please don't do that, and then would go back. And we were quite aggressive on this. But on the debrief at the end, no one objected. Even those who struggled said: it's just hard, I don't know how else to do it, you know, I'd welcome advice from the funding agencies on how to do this. And I said: Great, we don't know either, but we're working on it. (Interview 12)[5]

The quote also demonstrates how funders do not operate in isolation and that it takes a collaboration between various actors in the research ecosystem, including researchers themselves, to make a change. In this case, the funder encouraged the peer reviewers to look 'holistically' at the applicant as a person. What this participant was missing from the metrics, but considered relevant to fostering more equitable assessment practices, are people's stories. Funders have started to implement tools to include researchers' stories in the assessment process, such as narrative CV templates and the ARC's Research Opportunities and Performance Evidence (ROPE) criterion:

> The purpose of the ROPE criterion is to enable evaluation of a researcher's activities, outputs and achievements, in the context of career and life opportunities and experiences, including, where relevant, significant career interruptions. (ARC ROPE Statement, July 2020)

Note however, that such narratives are also explicitly made to perform the role of accounting for a period of decreased productivity, as the suggestion to include 'significant career interruptions' indicates. These interventions then do not necessarily challenge the 'more is better' logic implicated in dominant understandings of excellence. They form a 'patch' to a malfunctioning system. The transformative potential in the rejection of bibliometrics as proxy for quality, is rather to be found in the space that it opens up for (re-)defining criteria. For example:

> …a shift in focus towards a view of research quality that is defined in terms of originality, significance and rigour rather than counting metrics such as quantity of research outputs. In doing so, approaches like this acknowledge that the value in supporting excellence comes from making good progress towards a particular goal just as much as it does from the outputs of excellence itself. (Internal document)

The document from which this excerpt is derived is a first step towards the development of a new set of criteria for the research that this funder wants to support. It suggests a more process-oriented approach, that involves broadening the funder's understanding of what constitutes research quality. Thereby taking into account matters of equity, diversity and inclusion and setting standards for host institutions about fostering supportive research cultures. This ties in with our observation that excellence frameworks are to cover an increasingly wide range of aspects of the research and the researcher, which we will elaborate on in the following section.

Pluralizing

In two participating organizations the review criteria were undergoing revision. New frameworks were developed that involved rethinking or even abandoning notions of excellence. These funders were looking for new terms and definitions to characterize the kind of research they intend to fund. Such processes involved consultations with members of the research community, academic experts on research assessment, environmental scans and internal discussions. These interactions are important because, although the funder can act as a 'first mover', for taking on this role, the funder is also dependent on other actors in the research ecosystem:

> I: And why is it important for a funder to take this responsibility?
> R: I mean, we're essentially the incentive system, right? […] I think it's good that [funder] is taking the sort of leading 'we care about this stuff'- stance. I'm not sure if it's entirely appropriate for [a funder] to define like, what is a good research culture… In the end, it's going to have to come from the community itself, right. But I think there's things that [funder] can do to trigger someone to move right. If you don't have any first movers, no one will move because the system is so locked up currently. (Interview 16)

Concerns about research culture resonate with critiques on the excellence regime that address how hyper-competition fosters toxic work environments and unethical behavior (Watermeyer and Olssen, 2016; Moore et al., 2017). To mitigate this, the new framework proposes criteria to assess an applicant's commitment to create a positive research environment and an assessment of the host institution's capacity for facilitating this. Sev-

eral funders participating in our study were concerned with diversifying the set of assessment criteria beyond more narrow understandings of academic performance. Such criteria were formulated around open access, matters of equity, diversity and inclusion (EDI), knowledge translation and leadership qualities, amongst others. This effectively widens the notion of excellence, taking it upstream in the research process, in addition to simply focusing on the outputs of research. In some cases, these additional criteria were added to the excellence umbrella, thereby broadening what the notion of excellence pertains to:

> …it will tie together a lot of our different science policy elements, and to link them all together about why are we, you know, why are we asking for open access? Or you to manage your data? Or why do we care about EDI? And in a way, it all comes together under that lens of research excellence. […] I think that there is increasing understanding and acceptance across the ecosystem and I think probably, with the pandemic certainly further highlighting some of the inequities and challenges within the system, I think the timing's really right. (Interview 3)

Such an expansion of criteria potentially shifts the relations between funders, reviewers, researchers, knowledge users and other stakeholders in their often-overlapping roles in light of the assessment and decision-making process. One participant suggested that it might be necessary to look outside the research community to evaluate proposals on criteria like leadership qualities:

> If you're looking at something like leadership competencies, like, actually, most researchers don't have the expertise to decide if the answer to that question was proficient or not, and maybe you should look to a different sector. (Interview 16)

Including other actors in the review process, that are not necessarily 'peers,' challenges the idea of excellence as something to be recognized and identified only within and by the research community. When funding organizations take ownership of their definition of excellence, they extend their role beyond facilitating the peer review and resource allocation process. A funder then positions itself to shape the research ecosystem, by proposing new conceptualizations of excellence such as the 'multidimensional' approach offered here:

> This instance is a high-level discussion of what [funding organization] wants (in the normative sense of the word) to consider excellent. It is aimed at framing strategy and policy development at [funding organization] and might be used in introducing new members of evaluation bodies to the multidimensionality of excellence in research. (Instances of excellence form)

One aspect of this multidimensionality is the inclusion of the impact of research beyond the academy in the notion of excellence. This represents a broadening of the notion of excellence downstream in the research process, moving away from merely considering outputs of research, and potentially complementing the broadening of excellence already mentioned, which moves upstream to include research culture.

Enlarging the excellence umbrella is not the only way to address concerns, however. One participant talked about the debate in terms of "lumpers and splitters", making a division between those that put the new criteria under 'excellence', broadening its scope, and those that argue for holding on to (or abandoning) narrow definitions of excellence in terms of academic performance and developing separate measures to address other concerns. This also plays out at the level of national evaluation systems, where the UK REF for example includes impact case studies and in Australia there is a separate exercise, next to ERA, to assess Engagement and Impact. Splitting could enhance clarity:

> Be careful about being clear what you want to measure. I understand why attaching certain things to excellence may be attractive, because people want to try to strive for excellence. But I think it's also instructive in [this] context, that things like impact, don't need to be caught up in the excellence rhetoric to be considered important. They have their own language that creates their importance. (Interview 1)

Widening the scope of excellence generates the risk that these additional matters are subsumed

by excellence, or 'caught up in the excellence rhetoric', as mentioned here. Criteria supposed to mitigate the effects of hyper-competition then may become subject to ranking and competition themselves. This tension will be further explored after the following section that looks into efforts to transform funding allocation practices.

Transforming

Critiques of the excellence regime have gathered more attention for how competitive funding programs function as mechanisms of inclusion and exclusion. Excellence policies came with the promise of a trickle-down effect, where the concentration of resources on some was supposed to benefit all (Bloch and Sørensen, 2015; Aagaard et al., 2020). In practice, this, however, generated cumulative advantages for the winners in the system, a tendency described by Merton (1973) as the 'Matthew effect'. The meritocratic ideals that form the foundation of this allocation model are increasingly being questioned in light of the inequities in the research ecosystem. This comes with the acknowledgement that funding mechanisms tend to reproduce existing inequalities and that funding decisions are not only informed by differences in merit, but that other differences come to matter in the process too. One participant connected the Matthew effect to social reproduction: "…it's not exactly a Matthew effect thing, although that's the outcome of it. But it's you know, 'the people-who-look-like-me' issue" (Interview 5).

Another participant shared how the funding organization intended to break with its history of a "from cradle to grave" pattern of funding, likening the outcome to an "old boys club." Concerns around homogeneity in the science system were often expressed in the interviews and materials. Issues around excellence were notably framed in a discourse that links (the lack of) diversity in people, projects and institutions with (the lack of) diversity in how the research gets done and what knowledge is produced. The following statement from Michael Smith Health Research BC's strategic plan illustrates this:

Figure 2. Excerpt from Michael Smith Health Research BC strategic plan 2020-2025.

Funders have been collecting data on the demographics of their applicants and grant recipients along variables such as gender, age, race, ethnicity, language and geographical location. This has given visibility to underrepresented groups and areas in funding allocation and in funded institutions. However, as came up in the panel discussion when sharing our initial findings with the funders, the data only covers those researchers who apply and opt to share their data, which means that those who do not apply at all, or do not opt to share their data and their reasons for doing so, remain out of sight. Several studies have addressed bias in funding decision making (Langfeldt, 2006; Van Arensbergen et al., 2014; Jang et al., 2017; Tamblyn et al., 2018). This has led to interventions like affirmative action grants for women in science and (un)conscious bias training for reviewers. One participant suggested that funders are increasingly willing and looking to intervene in the research ecosystem:

> I always say, funders are hugely reluctant to intervene in research […] But what has changed, in my view, in the last decade that I've been in research funding, is funders stepping out of that in […] maybe more circumstances where they feel like we have a responsibility, that's not just to the community. When we say the community, it's the research community we serve, partner with, work with. But the broader society. And part of that is recognizing that the system has inequities in it and I'm talking about anything from ED&I, to open science, to culture, to all of this. And yet we have to evaluate what our role is in that and what we want to do differently. (Interview 12)

In several interviews, the funding organization was considered to be in the position of a 'catalyst' or a 'first mover' for making a difference.

When it is in the interest of society to make the research ecosystem more equitable, the funder has a responsibility to intervene in the research ecosystem. However, it was also noted that the 'response-ability', the way in which a funder can intervene, differs. Independent funders may have more room to maneuver:

> …because we're independent, it allows us to use our voice in ways that government or other agencies might not be able to […] we don't need to worry about backlash where others might. (Interview 15)

Initiatives that intend to mitigate the issue of homogeneity and the reproduction of inequalities in the research ecosystem chip away at the surface of meritocratic ideals by problematizing the presumption of equal opportunities. Excellence has thereby become associated with exclusionary practices that steer away from diversity through favoring those who adhere to a specific image of the ideal scientist and work conforming dominant epistemic practices (Thornton, 2013). However, attempts are made to bring excellence and diversity closer together. The notion of 'inclusive excellence' gained traction in North-American research and higher education institutions after 2005 when it was coined in a report commissioned by the Association of American Colleges and Universities to link quality to equity, diversity and inclusion (EDI) (Williams et al., 2005). From the university sector, it also made its way to research funding organizations. For example, in Michael Smith Health Research BC's strategic plan for 2021-2025: "Diversity in research is important to cultivating talent and promoting inclusive excellence, which in turn drives discovery."

Advocates of the notion of 'inclusive excellence' usually aim to subvert the idea that excellence and diversity do not go well together. But by doing so diversity is made into a prerequisite for performance. Promoting EDI is then no longer primarily a goal to improve the wellbeing of researchers or to achieve broader goals of fairness. Articulated in a performance discourse, where diversity comes with the promise of increased productivity and scoring higher in the rankings, following Sara Ahmed (2012: 108), diversity itself becomes a technology of excellence.

The idea of inclusive excellence may widen the notion but, as one interviewee suggested, could leave what they saw as some of the fundamental weaknesses of the excellence regime unaddressed:

> And unless we change the stuff inside of the concept, if we replace it with some other, like new and bright and shiny, modernized notion. I mean, even sort of the concept of inclusive excellence is getting talked about a lot. I don't necessarily know if we actually are going to achieve the deeper change we would seek to, because I think, for example, we still would be existing in a context where on some level, whether consciously or not, we are believing in the myth of meritocracy. (Interview 11)

Although the concept of inclusive excellence does important strategic work to make visible and to open up matters of EDI and research cultures, it does not necessarily transform excellence. Excellence continues to provide the conditions of possibility for the issue of diversity when "the language of diversity is exercised as the language of merit" (Ahmed, 2012: 109). The politics that stick to excellence then shape how matters of EDI are getting a place in the strategies of research funding organizations.

Radical moves to allocate funding in other ways have often met with resistance because of the embeddedness of excellence thinking. For example, the suggestion of adding a lottery element to the decision-making process to allocate funding to a limited number of closely-scoring proposals outside of the top range (the 'grey zone') has been opposed by various actors. It seems to challenge the system where excellence is accepted as emerging through (hyper-)competition. The reluctance to experiment with partial randomization in funding decision making was reported by one of our participants to stand in relation to excellence:

> And one of the reasons we've had trouble getting [partial randomization] to stick within our community, [is] because on the surface, it goes against the idea of excellence. And I think part of that is the idea of not only the excellence of the person applying, but the excellence of the committee. So, we sort of also think our

> committees are excellent and made up of excellent people. And again it becomes that thing. If you can't make a decision, how excellent are you? And that's not true, but they cannot move past that yet. (Interview 5)

Even though partial randomization involves the need for proposals to pass thresholds set by eligibility criteria, reviews and panel discussions before entering the lottery, it was perceived as an admission that the excellence regime does not work. The association made by the participant between discomfort around the suggested intervention and the status anxiety of people in the review committees, alludes to how deeply the ideal of competition and the belief in meritocracy underpin attachments to excellence.

Discussion and conclusion

After decades of promoting excellence in the research ecosystem through various science policies, excellence initiatives and performance measures, the focus on excellence has now become associated with a range of problems in the system. The problems include homogeneity both in terms of the research and the researchers, Matthew effects that make that those who have benefitted before are more likely to continue to benefit from the system at the cost of others, and hyper-competition which emphasizes individual performance and forms an incentive for undesirable behaviors. Yet, in this study, we have not approached excellence with critiques, sometimes seen in the literature, which seek to debunk excellence but do not take the funders' situation and the dilemmas they face seriously.

There was considerable heterogeneity amongst (and within) our participants' organizations. Funders have taken different approaches to excellence, some of which demonstrate the ways in which it is deeply embedded in their organizational policies and processes. We have highlighted instances of change, although recognize that the funders that participated in our study are likely among the more engaged on this issue. We encountered what we understand as a growing willingness to subject excellence to close inspection. Importantly, inspection does not dissolve it into nothing (cf. Merton, 1973). Approaching excellence as a matter of concern, means that much more time and resources are dedicated to shaping and reshaping excellence, for example through the mitigation strategies that we have highlighted in this paper.

While we appreciate the efforts of funding organizations to patch, pluralize and transform excellence, we also see limitations to these strategies. In particular, what limits possibilities for transformation are ideals around competition and meritocracy that underlie the notion of excellence. Resistance seen to radical initiatives such as partial randomization sheds light on what excellence is made of. Randomization challenges ideals around competition and merit-based decision making that are entrenched in the research ecosystem (Bendiscoli, 2019). But it also challenges the power relations in the system, in this case the decision-making capacities of peer reviewers and panels, the scientific gatekeepers.

The mitigation strategies we discussed in this paper, however, mostly leave ideals around competition and meritocracy untouched. Notions of excellence remain central, even when the word itself is not used. Patching and pluralizing strategies may shift the terms of competition, but leave intact the 'more is better' logic which shapes what is recognized as merit. Transforming strategies could potentially challenge the assumptions behind the ideal of merit-based competition, but are at risk of being dismissed or co-opted by actors and institutions with strong attachments to the excellence regime.

Our analysis suggests that research funding organizations will continue to grapple with excellence as a matter of concern because ideals such as competitiveness and meritocracy are still treated as matters of fact and yet at the same time, their relationship with ideals of equity and diversity is recognized to be unclear and contested. Moreover, research funding organizations can only do so much alone, as their activities are intertwined with those of other actors in the research ecosystem, such as researchers (in particular, scientific elites), universities and governments. As with many challenges in the research system, there is a need to create conversations within and across different actor groups in order to achieve fundamental change.

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Notes

1 For an elaborate review of the literature on excellence in the research ecosystem see Jong et al. (2021).

2 https://portal.cor.europa.eu/europe2020/Profiles/Pages/TheLisbonStrategyinshort.aspx

3 Ethical approval was granted by the University of Sheffield Research Ethics Committee on the grounds of the research ethics application form and the participant information sheet, reference number 036328, date of approval 11 September 2020. Interview participants and other contributors to the research gave explicit informed consent to take part before any data were collected. We have subjected our analysis at different stages through rounds of validation with participants.

4 In 2022, after the pilot phase of which the Transforming Excellence project was part, RoRI was established as a nonprofit community interest company (CIC) for its second phase (https://researchonresearch.org/).

5 Panel discussions were held in an online environment due to Covid pandemic restrictions, hence mention of cameras.