



Reflections on the diffusion of management and organization research in the context of open science in Europe

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ABSTRACT

Management and organization research (MOR) faces a crisis related to its social impact and limited response to grand societal challenges. It is also affected by the ongoing transformations in all scientific fields related to the creation, dissemination, and use of knowledge shaping known as “open science” (OS). According to the European Commission, OS must increase the links between the scientific fields and society to make science a socioeconomic engine to overcome these challenges. Therefore, contacting the public through social networks extends the social impact of MOR and facilitates new scientific evaluation metrics. Through an exploratory topic model applied to the Twitter activity of six European highly cited researchers (HCRs) in “economics and business”, we show that a large part of the Twitter activity of these HCRs refers to not only the content of their scientific work but also the social echo that has increased symbolic capital for HCRs.

1. Introduction

Since the beginning of the 21st century, voices critical of the social relevance of research on management and organization (management and organization research (MOR)) have increased. Several authors have spoken of the MOR crisis, among them Pfeffer and Fong (2002: 88), who affirmed that

[L]ess than one third of the tools and ideas that companies are paying money to implement came out of academia and those originated in universities were used less often and were abandoned more often.

Other authors have recently expressed themselves similarly (Haley, 2022; Tourish, 2019). Epistemological issues (like doubts on reproducibility and replicability of research in social sciences) have also arisen (Hensel, 2021).

Although this crisis has various causes, one of the most evident is the lack of connection between the academic field of management and organization studies and all those to whom, in principle, the findings in this field could interest. This “science-practice gap” is a key issue in MOR today (Božić et al., 2022).

Although the natural audience of MOR has traditionally been considered to be managers (or “executives”), it is evident that the knowledge generated by the research in this field pertains to and affects

other organizational actors. Therefore, reconfiguration of the social function of MOR is becoming increasingly important among management and organization academics.

This need is accelerated when considering the global circumstances of humanity (characterized by the planetary challenge derived from the climate crisis, rampant economic inequalities, and wars of various types and scales) and the creation, dissemination, and use of knowledge. Within the transcendental transformations occurring in the creation, diffusion, and use of knowledge, the emergence of open science (OS) has special relevance.

Considering the scope of the proposed research and space limitations, although we refer to the general framework of knowledge currently used, we focus on assessing the relationship between the social functions of MOR and OS in Europe, one of the main regions that led the development of knowledge over at least the past three centuries. Based on its own characterization (European Commission, 2018), OS seeks new modes of relationships between the traditional creators of knowledge (in universities and research centres) and a wide range of users and those interested in it. Particularly, regarding MOR, OS could be of interest to not only those running organizations but also to workers, consultants, public institutions (at the European, national, regional, and local levels), various civil society actors, and others.

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Regarding the increase in and measurement of the impact of MOR on all these social groups, the so-called “social networks” have gained considerable prominence in recent years. In this sense, systems such as those provided by Altmetric present a new perspective (www.altmetric.com):

Altmetrics comprise metrics and qualitative data that are complementary to traditional, citation-based metrics. They can include (but are not limited to) peer reviews on Faculty of 1000,¹ citations on Wikipedia and public policy documents, discussions on research blogs, mainstream media coverage, bookmarks on reference managers such as Mendeley and mentions on social networks such as Twitter.

We illustrate the changes in the respective social functions of MOR and OS with several examples from European countries. We analyze the dissemination of MOR results across different interested groups (including “practitioners”) in the context of the European Commission's OS objectives (Open data, European OS Cloud (EOSC), New generation metrics for research quality and impact, Rewards for researchers engaged in OS, Free and prompt access to scholarly communication, New research career evaluation systems, Research integrity and reproducibility of scientific results, Re-skilling of European scientists in OS practices, Boosting of citizen science).²

2. The management and organization research (MOR) crisis

2.1. Causes

Like the rest of the world, Europe is at a crossroads determined by the so-called “grand societal challenges”, including the climate emergency, geostrategic tensions, deficient global governance, growing inequalities in wealth distribution, and the development of artificial intelligence (George et al., 2016; Harley and Fleming, 2021). Overcoming these requires a collective and coordinated effort on a planetary scale (George et al., 2016). The contribution of MOR (in its field of action) to this effort requires overcoming the imbalances between its objectives and methods and the profound changes in societies and organizations (Davis, 2015; Roth, 2021; Tourish, 2019, 2020). This would increase the social impact of MOR – that is, its influence and relevance for the different interest groups operating within organizations (Haley, 2022; Harley, 2019).

The causes of this crisis³ can be gathered into two groups. The first one – more relevant among those authors most likely to accept the academic status quo – comprises those analyses based on epistemological causes (Bergh et al., 2017; Cronin et al., 2021; Makadok et al., 2018), whereas authors critical of that status quo develop their arguments from the sociology of the field of knowledge (Li, 2009). However, both currents converge when verifying that “practitioners” do not systematically use the scientific results of MOR (Kieser et al., 2015).

However, without neglecting the “grand societal challenges”, it now appears necessary to broaden the set of potential MOR users beyond the traditional “practitioners” (e.g., managers) because the organizations' stakeholder groups are widening.

Considering that managerialism is an essential part of the dominant ideology in contemporary societies (Drucker, 1954; Ward, 2012), it is logical that the knowledge generated by MOR affects and interests people and agents in general.

Therefore, the academic practices comprising MOR must be transformed to provide updated and useful knowledge to interest groups beyond those considered in past decades (managers, consulting companies, and policymakers) based on their demands and needs (Ghoshal,

2005; Kanter, 2005). Considering the five forms of MOR impact expressed by Wickert et al. (2021) (scholarly, practical, policy, societal, and educational), audiences such as workers, consumers (in the societal realm), and students (in the educational one) should also be addressed. The enlargement of MOR's audience requires reconsidering the scientific field incorporating MOR. Power dynamics, professional habitus, the establishment of research agendas, and the accumulation of symbolic capital by scientists³ (Bourdieu, 1975; Robinson et al., 2022) are aspects to be modified if the MOR crisis is to be overcome to increase its social usefulness. Future modifications would affect the whole field, including the linguistic repertoires with which MOR transfers its developments to new audiences (Falchetti et al., 2022).

Briefly, overcoming the current MOR crisis involves – among other aspects – modifying the scientific field, as well as expanding its social impact, fully considering the academic, practical, social, political, and educational dimensions (Wickert et al., 2021). MOR can thus offer a relevant contribution to facing the “grand societal challenges” (George et al., 2016; Seelos et al., 2023), as well as recovering the social trust in its activities and scientific results necessary to renew its legitimacy (Czaron, 2019; Rodríguez-Pomeda, 2023, pp. 1–32). However, after framing the renewal of MOR in the “great reset” of the same capitalist system defended by the World Economic Forum after the COVID-19 pandemic, other authors consider that it hides a totalitarian intention totally alien to science (Roth et al., 2023).⁴

Two additional arguments buttress the renewal of MOR. The first (focused on the opening of academic discussions) originates from the concept of the scientific field (Bourdieu, 1975, p. 19):

The “pure” universe of even the “purest” science is a social field like any other, with its distribution of power and its monopolies, its struggles and strategies, interests and profits, but it is a field in which all these *invariants* take on specific forms.

After the argument on the opening of academic discussions, the second (claiming more attention to the climate challenge) originates from the IPCC (International Panel on Climate Change, the United Nations body for assessing the science related to climate change (IPCC–Intergovernmental Panel on Climate Change, 2023: 6, 80, 84)):

Human activities, principally through emissions of greenhouse gases, have unequivocally caused global warming, with global surface temperature reaching 1.1 °C above 1850–1900 in 2011–2020... This has led to widespread adverse impacts on... economies and society and related losses and damages to nature and people...

Effective climate action requires political commitment, well-aligned multi-level governance and institutional frameworks, laws, policies and strategies... Adaptation and mitigation action benefits from drawing on diverse knowledge.

The feasibility, effectiveness and benefits of mitigation and adaptation actions are increased when multi-sectoral solutions are undertaken that cut across systems. When such options are combined with broader sustainable development objectives, they can yield greater benefits for human well-being, social equity and justice, and ecosystem and planetary health.

Consequently, changes in the MOR field (including expanding its

¹ “F1000 is a publishing solutions and services provider that serves researchers, funders, research institutions, societies, and associations” based on a specific “open research publishing model” (<https://f1000.com/about/>).

² https://research-and-innovation.ec.europa.eu/strategy/strategy-2020-2024/our-digital-future/open-science_en#ref-8-ambitions-of-the-eus-open-science-policy.

³ “Habitus is a system of embodied dispositions and a scheme of perception... it accounts for the stability of social practices... It is a product of history and of the past experiences deposited in individuals... it tends to guarantee the adequacy of practices and their constancy over time.” “Symbolic capital is the accumulated prestige or honour one derives from the accumulation of the three primary forms [of capital, i.e., economic, cultural, and social] and is significant in distinguishing one's self within a given field” (Robinson, et al., 2022, pp. 10, 12).

⁴ They disqualify (in an unwarranted generalization) “activist action research” based on the Mertonian vision of science as an end in itself, which allows them to place MOR academics in the “front row of planners” (Roth et al., 2023, p. 4), whose critique they finish by citing Hayek.

target audiences) could increase its social utility in overcoming such challenges, as shown next.

2.2. The reconfiguration of the MOR audience

The ethical, ontological, and epistemological positions of MOR researchers condition the audience for their work. According to Cunliffe and Pavlovich (2022), the main methods of cultivating “organization and management studies (OMS)” today are “professional OMS”, “critical OMS”, and “policy OMS”. Each of these addresses different work strategies and, consequently, different audiences. Such strategies are based on ontologies, researcher-other relationships, moral frameworks, purposes, epistemologies, and relevance criteria. Consequently, they are accountable for their work to the academic community of OMS, the critical academic community within OMS, and its clients (which can be, e.g., companies, governments, or nongovernmental organizations).

Following Burawoy (2005), Cunliffe and Pavlovich propose increasing the relevance of academic work in the OMS by advancing a critical ontology that allows “blurring the boundaries between self and other” (Cunliffe and Pavlovich, 2022: 885) to produce what they call the “public OMS”. Its purpose would be (id.)

Addressing problems and challenges in society, the economy, business, and organizations to generate change through situated and emergent knowing-from-within. An agenda created between academics and practitioners. Presenting findings in accessible ways for multiple audiences.

This proposal, transcending a self-referential activity exclusively referred to academia, could be linked to the call for increased social responsibility by Alvesson et al. (2017: 9):

[A]s researchers we have a responsibility to establish the meaning of what we do and demonstrate its social value beyond our narrow self- or tribal-interests.

Therefore, if MOR rigorously, effectively, critically, and compellingly addresses social practices (Geilinger et al., 2016), it is necessary to extend its target audiences to reach the whole of society.

Notably, the “public OMS” is based on a “critical social conscience” and, consequently, advocates for a different academy-society interaction from that postulated by the defenders of “open science”, as explained in the following section.

3. Changes in the knowledge social function: open science (OS)

3.1. Positions on the new knowledge social function

Since the beginning of the 21st century, the place and function of science in society (resulting from its drastic and profound transformations) have been intensely debated, as evidenced by the vast literature on the subject. Some authors (Krishna, 2020, p. 1) consider that “[E]ntering the third decade of the 21st century, the social contract between science and society is undergoing major changes”.

It appears evident that the scientific (and technological) system is being reconfigured to produce a new model of practices, relationships, and objectives. The debate on this is extensive and bitter. Regarding the implicit purpose of this reconfiguration, two antagonistic positions are exemplified, citing Mirowski (2018) and Piper (2017), one of his critics. The reconfiguration centres on the concept of “open science” (OS) developed in the following section.

According to Mirowski (2018), OS is the centrepiece of an agenda aiming to re-engineer the research process in consonance with platform capitalism. The “OS panacea” aims to overcome four evils that have recently afflicted science: the rampant distrust of science in the general population, the democracy deficit suffered by science, the “slowdown in scientific productivity”, and the “explosion of retractions and the falling rate of falsification” (Mirowski, 2018, pp. 174, 175, 178, 182).

As a synthesis of his position, he considers the following:

The irony of the situation is that although this petrification of the scientific enterprise

Could largely be attributed to previous neoliberal “reforms” in the first instance, the remedy

Proposed is to redouble neoliberal policies, now under the rubric of “open science”.

For most working scientists, the notion of “neoliberalism” may seem a vague and fuzzy

Abstraction; what they confront in everyday life is instead something often called “platform

Capitalism” (Mirowski, 2018, p. 189).

Other authors openly disagree with this position – for example, rhetorically asking whether science is becoming less democratic or arguing that the growth in retractions of published scientific articles is a symptom of a malfunction in the scientific system (conversely, it is healthy that undesirable behaviours are discovered and removed (Piper, 2017)). This position does not agree that OS (or, as they call it, the “scientific reform movement”) has a neoliberal orientation since it is not “monolithic”, it has no “pro-market orientation”, and its epistemological and philosophy of science premises cannot be univocally associated with neoliberalism (Tunç et al., 2022).

Briefly, the debate centres on whether OS is merely a refinement of traditional approaches to science (Miedema, 2022) or, conversely, it hides the intention of generating a new model for the commercialization of science (Fernandez Fernández Pinto, 2020).

Among the conflicts arising when OS develops, the literature is beginning to highlight those occurring between the logic of the market and the state, as well as that of the market and the professional (Lattu and Cai, 2023). Additionally, as another relevant effect of these conflicts, it is becoming increasingly evident that, despite the exponential growth of published scientific and technological knowledge, the disruptive nature of such knowledge is being reduced, potentially reflecting a fundamental change in the science and technology system (Park et al., 2023).

In this context and concerning our interest in “the relationship between the changes in the respective social functions of MOR and OS in Europe”, it is necessary to analyze the changes in the behaviour of academics regarding the social diffusion they give their work, implying new forms of relationships with multiple social agents. Thus, Reinhart (2022) analyzes scientific careers (attrition tests in which only the best – or the luckiest – pass), questioning their supposed meritocratic nature. The growing competitiveness and increase in inequalities in the scientific field could be related to how academics showcase their work. Such modes have undergone drastic transformations in the past 20 years due to the development of digital communication, resulting in “the visibility regime of a decentralized panopticon” (Reinhart, 2022, p. 195). The effects of new digital communication on MOR are demonstrated in sections 4 (“New dimensions of the social impact of MOR within the OS scheme: social networks”), 5 (“European illustrations”), and 6 (“Conclusions”) of this work.

Understanding such dynamics of personal diffusion of scientific work requires describing the new rules of the game derived from OS that are gradually being implemented throughout the world (and especially in Europe) by the political orientations emerging from UNESCO (United Nations Educational, Scientific and Cultural Organization), the OECD (Organization for Economic Co-operation and Development), and the European Commission.

3.2. OS in the European institutional context

The open science (OS) movement is inserted into a context in which society demands increased involvement of academic research in solving the major challenges it faces. In this sense, scientists are expected to provide solutions to society’s most immediate problems. This concerns not only the objectives pursued but also the scientific process to achieve

faster and more relevant results.

OS therefore represents a new method of organizing the scientific process based on collaborative work exploiting the new digital tools that allow and facilitate it. Thus, following the definition of UNESCO (2020, 5), “knowledge, methods, data and evidence of a scientific nature are freely available and accessible to all, scientific collaborations and the exchange of information are increased for the benefit of science and society, and the process of creating and disseminating scientific knowledge is opened to social agents that do not belong to the institutionalized scientific community”.

In its recommendations on open science, UNESCO highlights the importance of its being aligned with human rights (which refer to both participation in science and access to its results), with the contribution to the Sustainable Development Goals (ODS), with democratic values and the reduction of inequality and poverty. Thus, while acknowledging the economic benefit of OS investments, UNESCO emphasizes their social impact.

The OECD defines OS as “the efforts of researchers, governments, research funding agencies or the scientific community itself to make the primary results of research results financed with public funds (publications and research data)... accessible to the public in digital form with little or no restriction as a means of expediting research. These efforts are in the interest of improving transparency and collaboration, and fostering innovation” (OECD, 2015, p. 7). The fundamental objective is to make the research process more efficient to improve results and promote economic development. However, UNESCO, from a more ethical and cultural perspective, and the OECD, from a more economic perspective, agree on the main characteristics OS must have and the need for policies to promote them.

In this context, the European Commission is promoting OS as one of its fundamental axes to promote open innovation and thus improve the economic competitiveness of European companies in world markets. In the document “Open Innovation, Open Science, Open to the World – A vision for Europe”, the European Commission (2016) reflects the importance of developing an open innovation ecosystem facilitating the conversion of generated knowledge into socioeconomic value. In this ecosystem, the transformation of the scientific process in the direction indicated by the open science movement is considered highly relevant. For this, scientific work must be adapted to the needs of those who use it and be easily located, accessible, interpretable, and reusable (findable, accessible, interoperable, and reusable – FAIR) to make science more reliable, efficient, and responsible for increasing opportunities for innovation and facilitating the emergence of more science-based start-ups. In this sense, the document highlights that OS represents for science what Web 2.0 has represented for economic and social relations, and it can be as disruptive as electronic commerce has been for traditional commerce. A fundamental objective of OS in the EU is therefore to drive open innovation to make European companies successful in the new wave of innovations emerging in the interaction between digital, physical, and biological technologies; between the arts, business, and science; and between data, users, and organizations. Notably, OS does not mean “free science” here since it is considered essential to ensure that intellectual property rights are protected before publicizing the results to attract the investments necessary to convert the innovation research results. The European OS policy could thus be summarized with the following phrase: “as open as possible, as closed as necessary”. The principle “as open as possible, as closed as necessary” points towards a balance between the wider possible diffusion of scientific work and the

consideration of legitimate interests of the beneficiaries of that work (e.g., commercial exploitation, privacy, confidentiality, trade secrets, security rules, European Union competitive interests, or intellectual property rights).⁵

The European Commission has identified five main lines of potential political actions to support the development of OS.

1. Promote and create incentives for OS.
2. Remove barriers to OS.
3. Integrate and promote OA policies regarding both research data and publications.
4. Develop research infrastructures for OS to improve data hosting, access, and governance by developing a common framework for research data and creating a European OS cloud (open cloud).
5. Integrate OS in society as a socioeconomic engine to address society’s main challenges.

To advance in this direction, the Directorate General for Research and Innovation of the European Commission created, in May 2016, the Open Science Policy Platform (OSPP), a high-level advisory group comprising 25 expert representatives from the different stakeholders linked to the scientific research process (research infrastructures and platforms, policymaking bodies, researchers, research libraries, research funding organizations, learned societies and academies, universities and research organizations, publishers, and citizen science and public participation organizations). In a first document (OSPP–Open Science Policy Platform, 2018), this group collected a series of recommendations for implementing OS in the EU. These recommendations are divided into the eight priorities or pillars identified in the five areas of the European Open Science Agenda (Government of the Netherlands, 2016).

1. Rewards and incentives.
2. Next-generation metrics (“altmetrics”).
3. The future of scholarly communication.
4. The European cloud OS.
5. FAIR data (findable, accessible, interoperable, and reusable)
6. Integrity of the investigation.
7. Skills and education.
8. Citizen science.

Subsequently, in 2020, this group presented the final report of the Open Science Policy Platform (Mendez et al., 2020), which assesses the progress made in applying the recommendations established for the eight pillars in 2016. The report acknowledges that, despite the availability of technologies and tools, progress towards OS is slower than expected and many obstacles remain to be resolved. It also highlights that OS is not the ultimate goal but a mechanism to achieve a broader goal of achieving a shared research knowledge system by 2030: “OS must be integrated as part of a broader and systemic effort to promote all practices and processes that allow the creation, contribution, discovery and reuse of research knowledge in a more reliable, effective and equitable manner” (Mendez et al., 2020, 4).

In parallel, the open science monitor (OSM–Open Science Monitor, 2019), an observatory created by a consortium in coordination with the European Commission, has been launched to collect qualitative and quantitative information on the development of OS practices in reality. This information will enable the Commission to determine the trends and better implement its policies to promote OS. The information

⁵ See Article 39, Regulation (EU) 2021/695 of the European Parliament and of the Council of 28 April 2021 establishing Horizon Europe – the Framework Programme for Research and Innovation, laying down its rules for participation and dissemination, and repealing Regulations (EU) No 1290/2013 and (EU) No 1291/2013 (<https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX%3A32021R0695>).

sources for preparing the OSM aim to be as varied and complete as possible to establish a system of indicators, based on the collaboration of all agents, as transparent and reliable as possible, and compilations of experts' opinions on the subject.

In the field of research infrastructures, the European Commission has promoted the creation of the European Open Science Cloud (EOSC), which aims to promote the European OS policy through a research data management infrastructure targeting scientists, companies, and public authorities (EOSC–European Science Cloud, 2019). The platform's implementation schedule has three major stages, beginning in 2021 and scheduled for completion in 2027, when it should be fully operational for the research community, industry, and society generally.

Consequently, the open science movement and the pillars identified to drive its development are being integrated into European research practice. The FAIR principle of data and its open access, as well as open access to publications, is becoming a practice accepted by the scientific community, although much work remains to achieve its full implementation. Two key aspects must be highlighted, which particularly impact the paradigm shift open science entails: a change in the model of evaluating research activity and a need to include and involve all society in the scientific process, not only professional researchers and specialized scientific institutions (citizen science).

The new evaluation model for researchers, promoted by the Coalition for Advancing Research Assessment (CoARA—Coalition for Advancing Research Assessment, 2022), “requires basing assessment primarily on qualitative judgment, for which peer review is central, supported by responsible use of quantitative indicators”, which implies the need to “abandon inappropriate uses in research assessment of journal- and publication-based metrics, in particular inappropriate uses of Journal Impact Factor (JIF) and h-index”. Briefly, the aim is to emphasize assessing the social and economic impact of the research ahead of the academic prestige of the publications.

Citizen science implies a change in the research model towards open systems promoting collaborative innovation in the social and economic sphere to address the fundamental problems society faces in the 21st century.

How these new logics aimed to multiply the connections between various social agents linked to science with the so-called social networks as their preferred area of dissemination is explained next.

4. New dimensions of the social impact of MOR within the OS scheme: social networks

Social network use is a must in knowledge work (Pekkala and Zoonen, 2021), even when social networks involve positive and negative consequences for users (Zoonen et al., 2017), as well as for organizations and society as a whole (Vrontos et al., 2022). The use of the microblogging social network Twitter as an empirical source for scientific research has grown enormously in recent years (at least until the introduction of access restrictions after the network's change of ownership in 2022). An example of this enormous use is Karami et al. (2020), who analyzed 18,849 scientific articles based on data obtained from Twitter and published between 2003 and 2019. Nevertheless, after recent changes in Twitter's ownership, some authors defend the use of other social networks for wide diffusion of scientific discourse (Brembs et al., 2023).⁶

Despite Twitter's enormous potential for the dissemination of scientific ideas (expressed briefly: for most users, the limit is 280 characters; “There are a total of 1.3 billion Twitter accounts; 500 million tweets are posted every day” (Ahlgren, 2023)), it has been observed that such

diffusion is usually limited to user networks interested in scientific research (Alperin, Gomez, & Haustein, 2019). Therefore, the mere counting of tweets must be considered cautiously as an indicator of real diffusion beyond the specific scientific community in question in each case.

Consequently, research assessment systems such as altmetrics should be used prudently with an awareness of their limitations (Robinson-Garcia et al., 2017). The altmetric approach has been configured as a method differing from the conventional one to assess the impact of research. It comprises a series of research indicators based on activity in social networks. According to Priem et al. (2012:1),

So-called “alternative metrics” or “altmetrics” [4] build on information from social media use, and could be employed side-by-side with citations – one tracking formal, acknowledged influence, and the tracking the unintentional and informal “scientific street cred”.

Although, as we have just stated, it is necessary to carefully consider the incorporation of altmetrics into current scientific evaluation systems, the importance of scientific communication through Twitter should not be discounted for this reason. Indeed, according to Büchi (2017: 964):

[M]icroblogging on Twitter extends public science communication by providing additional voices and contexts as well as recommending content and directing attention. This extension of science communication may allow publics to share and find information essential for the interpretation of scientific developments and how they relate to their social realities.

Additionally, the process elaborating scientific knowledge could be traced through Twitter, which is crucial both from the epistemological viewpoint and from the more practical viewpoint of public participation in a process known as “citizen science”.

Publishing news about the knowledge creation process in microblogging networks such as Twitter is a scientific communication resource used unevenly between fields of knowledge. Among the related studies, Holmberg and Thelwall (2014) verify this result and state that – among the fields most like MOR – the use of Twitter in economics, sociology, and the history of science is marginal compared to biochemistry, humanities, digital sciences, cognitive science, astrophysics, and chemical informatics. In this last group of disciplines, the use of Twitter to popularize or disseminate science among the public is conspicuous. The messages (or tweets) posted on Twitter by the most active academics often contain links (direct or indirect) to articles recently published by them, especially when they have been published in the open. Generally, they are limited to reproducing the article's title in a neutral tone, or they are retweets of others previously published by the journal in which the article appeared (Sugimoto et al., 2017).

The tendencies of scientists from various fields to post on Twitter are modified by various causes. These include relevant life events, transitions to other academic positions, workload, configuration of digital identity, concern for privacy, technological changes, or the prevailing

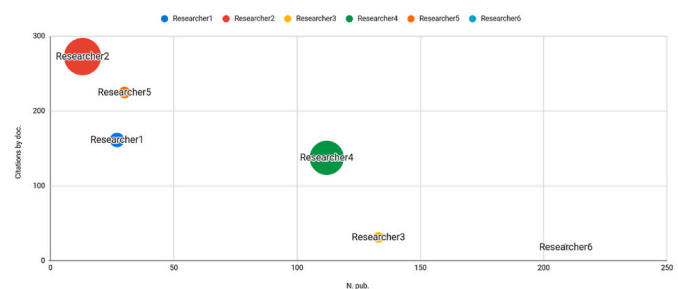


Fig. 1. Number of publications, citations by publication, and number of Twitter followers of six highly cited researchers in economics and business. Source: Own elaboration

⁶ Actually, “X Corp. is a technological company successor to Twitter, Inc. It is a subsidiary of X Holdings Corp., owned by Elon Musk” (<https://www.linkedin.com/company/x-holdings-corp/>). Since July 24, 2023, the brand “Twitter” has been substituted by “X”.

Fang et al. (2022) analyzed 6,229,001 scientific articles published between 2016 and 2018, of which 1,999,199 (32.1%) received at least one scholarly tweet, until they gathered 7,037,233 unique scholarly tweets through the Twitter API in February. On dividing them into five large areas of knowledge, the one in which MOR (social sciences and humanities, SSH) falls compiled 188,142 articles generating 671,490 tweets.

Fig. 3. Six main topics from the last 100 tweets of six highly cited researchers in economics and business.
Source: Own elaboration

The large SSH field records the highest proportion of scholarly tweets with at least one interaction activity (liking, retweeting, quote tweeting, and replying (Fang et al., 2022, p. 4533)):

[S]uggesting the higher probability for SSH-related scholarly information to be engaged with by Twitter user over other subject fields... SSH shows the most extensive distribution of all kinds of user engagement, thus acting as the most active subject field in giving rise to engagement with science on Twitter...

Of the 7 million scholarly tweets analyzed, only 2% received the four possible types of interaction, indicating that, of all the audiences reached through Twitter, a minority provokes the most complete conversations with the public. Given that the large SSH field is one of the most active in the set of four interactions, one might believe its scholars take a more rigorous and systematic approach to disseminating their work via Twitter.

Nevertheless, it is necessary to understand the uses of Twitter in depth to achieve effective dissemination of scientific results to various audiences through this social network. Specifically, it is important to build a community by interacting with other Twitter users, as well as sharing – in addition to the purely scientific – some personal and nonacademic information (Cheplygina et al., 2020).

5. European illustrations

5.1. Relationships between citations and some European highly cited researchers' activity on twitter

We intend to explore whether the critical situation experienced globally by MOR is reflected in the activity of this scientific field on the European continent. We started with the category of “economics and business” in the list of highly cited researchers (HCR).⁷ Once we selected the most cited researchers in “Economics and Business” through the HCR, we searched for European researchers, with an active and public account on Twitter, closer to MOR, resulting in the six researchers selected in this sample. The six with accounts on that social network show very different levels of activity (74–45,700 tweets) and numbers of followers (350–39,200).

The authors considered are Researcher 1 (Digital Economy, in a British university), Researcher 2 (Strategy, in a British university), Researcher 3 (Industrial Marketing, in a Swedish university), Researcher 4 (Economics, in a British university), Researcher 5 (Strategy, in a Spanish business school), and Researcher 6 (Finance, in an Irish business school).

Our first illustration (Fig. 1) relates the number of publications (X-axis), citations per document (Y-axis), and the number of Twitter followers (bubble size) of these researchers. This is a first approximation of their level of influence and degree of acceptance on Twitter.

5.2. Topic modeling of the most recent 100 tweets of each researcher

Subsequently, we built a topic model with their last 100 tweets to explore the words they used in their communications with the public via Twitter.

We focused on the last 100 tweets from each researcher to avoid biasing the model towards those who post the most on Twitter. The word cloud shows some referring to the research lines of each author (LGBTQ rights, platform, management, etc.), to their academic activity

(conference, keynote, seminar, etc.), and, curiously, to the congratulations received by accessing the select group of HCRs (congratulations, thanks, etc.) (see Fig. 2).

The topic model was developed using different scripts in the Python programming language as well as the SnsCrape package (JustAnotherArchivist, 2023) to conduct scraping tasks on Twitter and extract the tweets of the selected researchers or those who mentioned them.

Finally, these tweets were loaded into the R statistical package (R Core Team, 2022) to develop a topic model through the tm package (Feinerer et al., 2008). For this, the methods described by Nikita (2016) were previously applied using their ldatuning package, which allows determination of the optimal number of topics based on the methods described by Arun et al. (2010), Cao et al. (2009), Devaud et al. (2014), and Griffiths and Steyvers (2004). Finally, the six main topics were selected, of which the most representative terms are shown – that is, those with a higher beta. (see Fig. 3)

6. Conclusions

Although differences exist in the literature regarding the scope of the legitimacy crisis affecting MOR, the assessments partially converge on the need to update certain practices in this scientific field. Moreover, considering the dimension of the “grand societal challenges”, their urgency, and the need to approach them multidisciplinary, it appears evident that the ontological, ethical, and epistemological bases of MOR must be reconsidered.

Such revitalization involves expanding the audiences targeted by the work of MOR academics beyond those traditionally considered (managers, consultants, policymakers, and the academics themselves). That necessary “critical social conscience” in MOR converges with recent changes in the configuration and social function of science with the new paradigm of OS. OS can be viewed as a mere update of the conventional approaches to science or as a new model of its commercialization. Nevertheless, new dynamics of knowledge generation (e.g., “citizen science”) and dissemination are being observed to achieve a higher social and economic impact. Such dynamics result from a new institutional framework, in which Europe (especially the European Commission) has a leading role. A central piece of this new framework is the renewal of scientific activity evaluation using new tools that consider social networks. This is the case with altmetrics, which, among other entries, consider researchers' activity on Twitter. We have presented an illustration referring to six European HCRs active on this network to highlight certain links between the Twitter presence of these academics and their connection with different social groups.

Based on the empirical study conducted, we conclude, firstly, that no relationship exists between the number of citations per document and the number of followers on Twitter. Secondly – as the literature indicates – an important part of selected researchers' activity on Twitter does not refer strictly to the content of their scientific work but to the social echo of the increase in their symbolic capital on becoming an HCR (topic 4), which is indicative about the relevance of being included in this list for every researcher no matter her scientific discipline. The underlying structure of the 600 studied tweets shown by the elaborated topic model is configured by a series of words transversal to the six topics found (digital, research, management, congratulations, paper) and others referring to academic activities (topic 2: conference, keynote, presentation, panel), as well as the intersection between concepts specific to the research of each scientist (platform, service, markets) and broader social issues (LGBTQ, rights, climate, global, Brexit), especially indicative of the interest generated in the area by some of the “grand societal challenges”. The term “Brexit” (which appears in topic 3) undoubtedly points to a European question of wide and deep scope, of interest on both sides of the English Channel. However, the transversality of some of the terms could be due to the characteristics of a social network such as Twitter, in which academic and personal issues are often mixed and it is difficult to separate one from the other even by using probabilistic

⁷ A list with the most cited author in each scientific discipline, published annually by Clarivate Analytics using the citation indexes data of the Web of Science, a set of public (not free) databases (SCI, SSCI, A&HCI, etc.) which include citations of each citable item (articles, reviews, and proceeding papers) published in the journals comprised in those databases.

techniques such as topic modeling. If the volume of the corpus used to elaborate the topic model were expanded, perhaps it could be discerned whether, as we have identified, MOR (through some of its HCRs) is beginning to include “grand societal challenges” in its research and, consequently, overcome the crisis situation afflicting this scientific field. In this sense, the possibility of continuing with this research line in the future is raised, exploring platforms other than Twitter (or X) because many people are leaving it, expanding the sample of researchers, either through HCR or through another type of sampling, and including the comparison between the topics extracted from the tweets and those that can be obtained from the publications.

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Declarations of interest

None.

References

- Ahlgren, M. (2023). 55+ Twitter statistics, facts & trends for 2023. Retrieved from <https://www.websiterating.com/research/twitter-statistics/>. (Accessed 21 June 2023).
- Alperin, J. P., Gomez, C. J., & Haustein, S. (2019). Identifying diffusion patterns of research articles on Twitter: A case study of online engagement with open access articles. *Public Understanding of Science*, 28(1), 2–18. <https://doi.org/10.1177/0963662518761733>
- Alvesson, M., Gabriel, Y., & Paulsen, R. (2017). Return to meaning. *A social Science with Something to say*. Oxford University Press.
- Arun, R., Suresh, V., Veni Madhavan, C. E., & Narasimha Murthy, M. N. (2010). On finding the natural number of topics with latent dirichlet allocation: Some observations. In , Vol. 14. *Advances in knowledge discovery and data mining: 14th Pacific-Asia conference, PAKDD 2010* (pp. 391–402). Hyderabad, India: Springer. June 21–24, 2010. Proceedings. Part I.
- Bergh, D. D., Sharp, B. M., Aguinis, H., & Li, M. (2017). Is there a credibility crisis in strategic management research? Evidence on the reproducibility of study findings. *Strategic Organization*, 15(3), 423–436.
- Bourdieu, P. (1975). The specificity of the scientific field and the social conditions of the progress of reason. *Social Science Information*, 14(6), 19–47. <https://doi.org/10.1177/053901847501400602>
- Božić, K., Bachkurov, A. A., & Černe, M. (2022). Towards better understanding and narrowing of the science-practice gap: A practitioner-centered approach to management knowledge creation. *European Management Journal*, 40, 632–644. <https://doi.org/10.1016/j.emj.2021.09.006>
- Brembs, B., Lenardic, A., Murray-Rust, P., Chan, L., & Irawan, D. E. (2023). *Mastodon over mammon: Towards publicly owned scholarly knowledge* (Vol. 10). Royal Society Open Science, Article 230207. <https://doi.org/10.1098/rsos.230207>
- Büchi, M. (2017). Microblogging as an extension of science reporting. *Public Understanding of Science*, 26(8), 953–968. <https://doi.org/10.1177/0963662516657794>
- Burawoy, M. (2005). For public sociology. 2004 presidential address. *American Sociological Review*, 70, 4–28.
- Cao, J., Xia, T., Li, J., Zhang, Y., & Tang, S. (2009). A density-based method for adaptive LDA model selection. *Neurocomputing*, 72(7–9), 1775–1781.
- Cheplygina, V., Hermans, F., Albers, C., Bielczyk, N., & Smeets, I. (2020). Ten simple rules for getting started on Twitter as a scientist. *PLoS Computational Biology*, 16(2), Article e1007513. <https://doi.org/10.1371/journal.pcbi.1007513>
- CoARA—Coalition for Advancing Research Assessment. (2022). In *Agreement on reforming research assessment*, 20 July 2022. Retrieved from https://coara.eu/app/uploads/2022/09/2022_07_19_rra_agreement_final.pdf. (Accessed 22 June 2023).
- Cronin, M. A., Stouten, J., & van Knippenberg, D. (2021). The theory crisis in management research: Solving the right problem. *Academy of Management Review*, 46(4), 667–683.
- Czakon, W. (2019). Grand challenges: A way out of the ivory tower for management Academic Discipline. *Problemy Zarządzania-Management Issues*, 17(4–84), 9–23. <https://doi.org/10.7172/1644-9584.84.1>
- Davis, G. F. (2015). Editorial essay: What is organizational research for? *Administrative Science Quarterly*, 60, 179–188.
- Devaud, R., SanJuan, E., & Bellot, P. (2014). Accurate and effective latent concept modeling for ad hoc information retrieval. *Document Numérique*, 17(1), 61–84.
- Didegah, F., Mejlgaard, N., & Sørensen, M. P. (2018). Investigating the quality of interactions and public engagement around scientific papers on Twitter. *Journal of Informetrics*, 12, 960–971. <https://doi.org/10.1016/j.joi.2018.08.002>
- Drucker, P. (1954). *The practice of management*. New York: Harper.
- EOSC – European Science Cloud. (2019). Draft proposal for a European partnership under Horizon Europe. *European Open Science Cloud (EOSC) Partnership*. Retrieved from https://eraportal.sk/wp-content/uploads/2020/06/ec_rtd_he-partnership-open-science-cloud-eosc-1.pdf. (Accessed 22 June 2023).
- European Commission. (2016). Open science, open to the world. A vision for Europe. Directorate- general for research and innovation. *Publications Office of the European Union*. Retrieved from <https://data.europa.eu/doi/10.2777/061652>. (Accessed 22 June 2023).
- European Commission. (2018). Mutual learning exercise: Open science. *Altmetrics and Rewards*. Publication Office of the European Union.
- Falchetti, D., Cattani, G., & Ferriani, S. (2022). Start with ‘Why,’ but only if you have to: The strategic framing of novel ideas across different audiences. *Strategic Management Journal*, 43(1), 130–159. <https://doi.org/10.1002/smj.3329>
- Fang, Z., Costas, R., & Wouters, P. (2022). User engagement with scholarly tweets of scientific papers: A large-scale and cross-disciplinary analysis. *Scientometrics*, 127, 4523–4546. <https://doi.org/10.1007/s11192-022-04468-6>
- Feinerer, I., Hornik, K., & Meyer, D. (2008). Text mining infrastructure in R. *Journal of Statistical Software*, 25(5), 1–54.
- Fernández Pinto, M. (2020). Open science for private interests? How the logic of OpenScience contributes to the commercialization of research. *Frontiers in Research Metrics and Analytics*, 5, 588331. <https://doi.org/10.3389/frma.2020.588331>
- Geilinger, N., Haefliger, S., von Krogh, G., & Rechsteiner, L. (2016). What makes a social practice? Being, knowing, doing and leading. *European Management Journal*, 34, 319–327. <https://doi.org/10.1016/j.emj.2016.04.006>
- George, G., Howard-Grenville, J., Joshi, A., & Tihanyi, L. (2016). Understanding and tackling societal grand challenges through management research. *Academy of Management Journal*, 59(6), 1880–1895. <https://doi.org/10.5465/amj.2016.4007>
- Ghoshal, S. (2005). Bad management theories are destroying good management practices. *The Academy of Management Learning and Education*, 4(1), 75–91.
- Government of the Netherlands. (2016). Amsterdam call for action on open Science. Amsterdam conference ‘open science. From Vision to Action. Retrieved from <https://www.ouvirilascience.fr/amsterdam-call-for-action-on-open-science-2/>. (Accessed 22 June 2023).
- Griffiths, T., & Steyvers, M. (2004). Finding scientific topics. In *Proceedings of the Academy of Sciences of the United States of America* (Vol. 101, p. 9).
- Haley, U. C. V. (2022). *Impact and the management researcher*. London: Routledge.
- Harley, B. (2019). Confronting the crisis of confidence in management studies: Why senior scholars need to stop setting a bad example. *The Academy of Management Learning and Education*, 18(2), 286–297. <https://doi.org/10.5465/amle.2018.0107>
- Harley, B., & Fleming, P. (2021). Not even trying to change the world: Why do EliteManagement journals ignore the major problems facing humanity? *The Journal of Applied Behavioral Science*, 57(2), 133–152. <https://doi.org/10.1177/00218863211997189>
- Hensel, P. G. (2021). Reproducibility and replicability crisis: How management compares to psychology and economics –A systematic review of literature. *European Management Journal*, 39, 577–594. <https://doi.org/10.1016/j.emj.2021.01.002>
- Holmberg, K., & Thelwall, M. (2014). Disciplinary differences in Twitter scholarly communication. *Scientometrics*, 101, 1027–1042. <https://doi.org/10.1007/s11192-014-1229-3>
- IPCC –Intergovernmental Panel on Climate Change. (2023). Synthesis report of the IPCC sixth assessment report (AR6). *Longer Report*. Retrieved from https://www.ipcc.ch/report/ar6/syr/downloads/report/IPCC_AR6_SYR_LongerReport.pdf. (Accessed 22 June 2023).
- JustAnotherArchivist. (2023). *snsraper: a social networking service scraper in Python*. Retrieved from <https://github.com/JustAnotherArchivist/snsraper>. (Accessed 22 June 2023).
- Kanter, R.M. (2005). What theories do audiences want? Exploring the demand side. *The Academy of Management Learning and Education*, 4(1), 93–95.
- Karami, A., Lundy, M., Webb, F., & Dwivedi, Y. K. (2020). Twitter and research: Asystematic literature review through Text mining. *IEEE Access*, 8, 67698–67717. <https://doi.org/10.1109/ACCESS.2020.2983656>
- Kieser, A., Nicolai, A., & Seidl, D. (2015). The practical relevance of management research: Turning the debate on relevance into a rigorous scientific research Program. *The Academy of Management Annals*, 9(1), 143–233.
- Krishna, V. V. (2020). Open science and its enemies: Challenges for a sustainable science-society social contract. *Journal of Open Innovation: Technology, Market, and Complexity*, 6(61). <https://doi.org/10.3390/joitmc6030061>
- Lattu, A., & Cai, Y. (2023). Institutional logics in the open science practices of university-industry research collaboration. *Science and Public Policy*, 1–12. <https://doi.org/10.1093/scipol/scad037>, 00.
- Li, X. (2009). *The management academia: A naked carnival*. Copenhagen Business School: Department of International Economics and Management. Working Paper xl-01-2009.
- Makadok, R., Burton, R., & Barney, J. (2018). A practical guide for making theory contributions in strategic management. *Strategic Management Journal*, 39, 1530–1545. <https://doi.org/10.1002/smj.2789>
- Mendez, E., Lawrence, R., MacCallum, C. J., Moar, E., and Open Science Policy Platform. (2020). Progress on Open Science: Towards a Shared Research Knowledge System. Final Report of the Open Science Policy Platform. Publications Office of the European Union. Retrieved from <https://data.europa.eu/doi/10.2777/00139>. Accessed June 22, 2023.
- Miedema, F. (2022). *Open science: The very idea*. Springer. <https://doi.org/10.1007/978-94-024-2115-6>
- Mirowski, P. (2018). The future(s) of open science. *Social Studies of Science*, 48(2), 171–203.

- Nikita, M. (2016). Idatauning: Tuning of the latent dirichlet allocation models parameters. R package version 0.2-0. Retrieved from https://cran.r-project.org/web/packages/lda_tuning/index.html. (Accessed 22 June 2023).
- OECD. (2015). Making open science a reality. In *OECD science, Technology and industry policy papers* (Vol. 25) OECD Publications.
- OSM – Open Science Monitor. (2019). Study on open science: Monitoring trends and drivers. *Final Report*. Retrieved from https://research-and-innovation.ec.europa.eu/system/files/2020-01/ec_rtd_open_science_monitor_final-report.pdf. (Accessed 22 June 2023).
- OSP – Open Science Policy Platform. (2018). Open science policy Platform Recommendations. *Publications Office of the European Union*. Retrieved from <https://data.europa.eu/doi/10.2777/958647>. (Accessed 22 June 2023).
- Park, M., Leahy, E., & Funk, R. J. (2023). Papers and patents are becoming less disruptive over time. *Nature*, 613, 138–144. <https://doi.org/10.1038/s41586-022-05543-x>
- Pekkala, K., & Zoonen, W. van (2021). Work-related social media use: The mediating role of social media communication self-efficacy. *European Management Journal*, 40, 67–76. <https://doi.org/10.1016/j.emj.2021.03.004>
- Pfeffer, J., & Fong, C. (2002). The end of business schools? Less success than meets the eye. *The Academy of Management Learning and Education*, 1, 78–95.
- Piper A. (2017). Is open science a neo-liberal tool? Here's why not. TXTLAB, 22 February. Retrieved from <https://txtlab.org/2017/02/is-open-science-a-neo-liberal-tool-heres-why-not/>. Accessed June 20, 2023.
- Priem, J., Piwowar, H. A., & Hemminger, B. M. (2012). *Altmetrics in the wild: Using social media to explore scholarly impact*. arXiv:1203.4745 [cs].
- R Core Team. (2022). R: A language and environment for statistical computing. Retrieved from <https://www.bibsonomy.org/bibtex/7469ffee3b07f9167cf47e7555041ee7#export>. (Accessed 22 June 2023).
- Reinhart, M. M. (2022). Open science as an engine of anxiety: How Scientists Promote and defend the visibility of their digital selves, while becoming fatalistic about academic careers. A. M. Brighenti (Ed.). *The New Politics of Visibility*, 175–200 (Intellect Books).
- Robinson-García, N., Costas, R., Isett, K., Melkers, J., & Hicks, D. (2017). The unbearable emptiness of tweeting—about journal articles. *PLoS One*, 12(8), Article e0183551. <https://doi.org/10.1371/journal.pone.0183551>
- Robinson, S., Ernst, J., Thomassen, O. J., & Larsen, K. (2022). Introduction. Taking bourdieu further into studies of organizations and management. In S. Robinson, J. Ernst, K. Larsen, & O. J. Thomassen (Eds.), *Pierre Bourdieu in studies of organization and management*. Societal change and transforming fields (pp. 1–19). Routledge.
- Rodríguez-Pomeda, J. (2023). *An essay about a philosophical attitude in management and organization studies based on parrhesia* (pp. 1–32). Philosophy of Management. <https://doi.org/10.1007/s40926-023-00232-9>
- Roth, S. (2021). The great reset of management and organization theory. A European perspective. *European Management Journal*, 39(5), 538–544.
- Roth, S., Czakon, W., Amann, W., & Dana, L.-P. (2023). From organised scepticism to research mission management? Introduction to the great reset of management and organization theory. *Scandinavian Journal of Management*. <https://doi.org/10.1016/j.scaman.2023.101277>
- Seelos, C., Mair, J., & Traeger, C. (2023). The future of grand challenges research: Retiring a hopeful concept and endorsing research principles. *International Journal of Management Reviews*, 25, 251–269. <https://doi.org/10.1111/ijmr.12324>
- Sugimoto, C. R., Work, S., Larivière, V., & Haustein, S. (2017). Scholarly use of social media and altmetrics: A review of the literature. *Journal of the Association for Information Science and Technology*, 68(9), 2037–2062. <https://doi.org/10.1002/asi.23833>
- Tourish, D. (2019). *Management studies in crisis. Fraud, deception and meaningless research*. Cambridge. Cambridge University Press.
- Tourish, D. (2020). The triumph of nonsense in management studies. *The Academy of Management Learning and Education*, 19, 99–109. <https://doi.org/10.5465/amle.2019.0255>
- Tunç, D. U., Tunç, M. N., & Eper, Z. B. (2022). Is open science neoliberal? *Perspectives on Psychological Science*, 1–15. <https://doi.org/10.1177/17456916221114835>
- Veletsianos, G., Johnson, N., & Belikov, O. (2019). Academics' social media use over time is associated with individual, relational, cultural and political factors. *British Journal of Educational Technology*, 50(4), 1713–1728. <https://doi.org/10.1111/bjet.12788>
- Vrontis, D., Siachou, E., Sakka, G., Chatterjee, S., Chaudhuri, R., & Ghosh, A. (2022). Societal effects of social media in organizations: Reflective points deriving from a systematic literature review and a bibliometric meta-analysis. *European Management Journal*, 40, 151–162. <https://doi.org/10.1016/j.emj.2022.01.007>
- Ward, S. C. (2012). *Neoliberalism and the global restructuring of knowledge and education*. Routledge.
- Wickert, C., Post, C., Doh, J. P., Prescott, J. E., & Prencipe, A. (2021). Management research that makes a difference: Broadening the meaning of impact. *Journal of Management Studies*, 58(2), 297–320. <https://doi.org/10.1111/joms.12666>
- Zoonen, W. van, Verhoeven, J. W. M., & Vliegthart, R. (2017). Understanding the consequences of public social media use for work. *European Management Journal*, 35, 595–605. <https://doi.org/10.1016/j.emj.2017.07.006>