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COVID-19 and the onlineification of research: kick-starting a dialogue on Responsible online Research and Innovation (RoRI)

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ABSTRACT

The COVID-19 crisis opened up discussions on using online tools and platforms for academic work, e.g. for research (management) events that were originally designed as face-to-face interactions. As social scientists working in the domain of responsible research and innovation (RRI), we draft this paper to open up a dialogue on Responsible online Research and Innovation (RoRI), and deliberate particular socioethical opportunities and challenges of the onlineification in collaborative theoretical and empirical research. An RRI-inspired 'going online' approach would mean, we suggest, trying to make academic events and research activities more inclusive, researchers' attitude to their work more reflective and suggest processes that are more responsive to societal needs and ethical concerns. For such systematic reflection, we suggest using the RRI-heuristic provided by Owen et al., and applying the dimensions of 'Anticipation, Inclusion, Reflection and Responsiveness' (AIRR) in order to identify and reflect on the dilemmas involved in 'going online' in one's research.

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The COVID-19 crisis opened up discussions on using online tools and platforms for academic work, e.g. for research (management) events that were originally designed as face-to-face interactions. This may not raise an eyebrow. After all, inquiry into online platforms as an object of research already has a decades long tradition (Sloan and Quan-Haase 2017). Also, the use of online methods and tools, such as surveys, social media-scraping and computer-assisted content analysis (Fielding, Lee, and Blank 2008), goes a long way. However, doing and managing research fully online, as sparked by COVID-19, presents a new situation all together, especially if research includes interactive methods of data-gathering and deliberation as well as collaborative research management meetings. As were most professionals, we as researchers were forced to make hasty decisions about going online during the Corona crisis. As social scientists working in the domain of responsible research and innovation (RRI), we draft this paper to open up a dialogue on Responsible *online* Research

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and Innovation (RoRI), and deliberate particular socio-ethical opportunities and challenges of the onlineification in collaborative theoretical and empirical research.

Sudden disruptions in routines present moments of ‘dissociative dynamics’ (Knorr Cetina 2001) that offer an opportunity for reflexivity. Those presented by the Corona situation, we argue, should not go unattended in light of aspirations of responsible research and innovation. Reflection is also warranted since what starts as an *ad hoc* response to a crisis situation might soon become the ‘new normal.’ Universities considering keeping their education activities online in the future, at least partially, are case in point. The same may hold for the academic endeavors and research management events, such as consortium workshops or evaluation meetings, that are organized online during the Corona pandemic. It may also apply to collaborative research activities such as focus groups, multi-stakeholder workshops and other interactive experimental efforts that are now held via video communication and conducted online. With the plethora of communication and collaboration tools to choose from, an ‘online collaborative research and innovation sphere’ may seem highly promising, if only because of its significant environmental advantages. Furthermore, taking efforts at co-analysis, co-design and co-decision making online may prove to open up new and interesting trajectories in terms of participation and engagement. Still, going online raises questions about responsible decision making and implementation. What from the sphere of human encounters is lost in digital space? What does it mean in terms of access and power?

In our view, ‘going online’ warrants a systematic questioning of the consequences of migrating a research event or (aspects of) an innovation process to an online setting. Taking our collective duty of care seriously as researchers, we should aim to stir reflection on the tendency to uncritically move research online simply ‘because of the situation.’ Our aim is to kick-start a critical conversation on the ethical acceptability and social desirability of the ‘onlineification of everything’ in general, and of taking (collaborative) research online in particular, in light of RRI considerations. This brief thought-piece reflects on the consequences and dilemmas involved, and sketches possible avenues for investigating Responsible online Research & Innovation (RoRI).

Responsible research and the digital sphere

The computational turn in the social sciences (Ledford 2020) has led to a discussion on the ethics and relevance of using ‘big data,’ as well as on using Internet-based platforms to collect qualitative data (Namey et al. 2020) in the social sciences and the humanities (SSH). Concerns are counterbalanced with optimistic reflections about how online collaborative research activities might further an ‘opening up’ of science to society (cf. Okada and Sherborne 2018). However, the discussion is mostly limited to either the embedding of RRI into info-communication technologies (ICT) innovation (e.g. Jirotko et al. 2017) or, alternatively, to using ICT innovations to facilitate a discussion on RRI as a concept (e.g. Ajami et al. 2016; Flipse 2018). In our view, in contrast, an RRI perspective on ‘taking research or innovation processes (partly) online’ requires systematic scrutiny of the implications of such a move. Does ‘going online’ lead to an integration of stakeholders that researchers might otherwise not reach? Does it offer a new sphere for researchers’ creativity, for developing formats, modes for attracting those who previously were not involved, or harvesting or analyzing new and unexpected data? Would online co-creation practices in science and innovation trigger reflections in a similar way as on-site, face-to-face

interactions would? Might it, as we have seen in other social spheres impacted by the Corona crisis, underscore and magnify existing divisions in society? An RRI-inspired ‘going online’ approach would mean, we suggest, trying to make academic events and research activities *more* inclusive, researchers’ attitude to their work *more* reflective and suggest processes that are *more* responsive to societal needs and ethical concerns.

For such systematic reflection, we suggest using the RRI-heuristic provided by Owen et al. (2013), and applying the dimensions of ‘Anticipation, Inclusion, Reflection and Responsiveness’ (AIRR) in order to identify and reflect on the dilemmas involved in ‘going online’ in one’s research. Furthermore, we differentiate between implications of such a move on three levels (*-macro*, *-meso* and *-micro*), to identify challenges and to reflect on the responsibilities of various actors involved.

Anticipation

Among the issues for consideration are the longer-term impacts of taking research online. What comes first to the mind when considering the implications is the reduction of environmental costs, an asset eagerly emphasized by large ICT companies that jump on the bandwagon of fighting the climate crisis or academic overspending. However beneficial, the downside on the macro level should also be considered by researchers and research institutions. It implies a further corporatization of research: profit making logic enters academic research and channels even more as public monies for scientific research flow towards big tech companies. It may well lead to a future with fewer researchers employed. Doing research online offshores research activities and tilts the emphasis, especially in the social sciences, towards a preference for machine-analyzable data and the use of applied arithmetic in online networks. Those with power in research funding and the knowledge infrastructure on the national and supranational level should be vigilant of such corporatization scenarios and take up an oversight role. On the meso level, ‘solutionism’ – past/present practices in constant need of new (online) technologies (Dewandre 2018) – may result in greater social stratification: those with the financial means and appropriate skillsets can use the newest online technologies and be included in the future of first tier research, while others who have lesser means may be degraded to secondary roles. Beyond that, research in line with the latest online technologies may seriously be affected by sales strategies and fashionable applications confining the scope, the content and the possible results of the specific research undertaken. Researchers might benefit from interaction with independent and academically literate professionals when making decisions in the online world in order to choose appropriate tools and make choices to the core of reflected and documented research strategy. On the micro level, academic careers and meaningful output may be even more determined by access to appropriate tools and epistemic communities sharing similar online experience. To avoid such dynamics of exclusion among researchers, severed by a technological fix promised by big tech companies, research managers might make a conscious effort to ensure inclusivity by complementing online research activities with offline counterparts.

Inclusion

Another asset that is often emphasized is the possibility to engage a broader range of stakeholders when ‘going online,’ paired with a reduction of research costs. While this

certainly may be the case, a caveat is in place. From a non-RRI point of view, the ‘public’ is and remains an ‘inclusive exclusion’ (Agamben 1998) to the sovereignty of science, presenting stakeholders’ involvement as an exception to the rule and thus maintaining, in the very act of inclusion, a relation of exclusion (Szerszynski 2005, 192; cf. Blok 2014). A virtual opening up of online venues may reinforce inclusive exclusion, as inclusion depends less on being invited as on the politics of access. Even if an ‘inclusive’ approach is adopted, actual participation remains a matter of negotiation between researchers and research process participants, and an online setting might change the terms. While platform companies like Zoom or Office Meets offer ‘raising hand’ options, for instance, as a sign of willingness to enter the discussion, the ‘host’ still controls whether such a request is granted in a way that, given the online setting, remains rather unchallengeable. The chat function (‘to all’) can be used by the participants to have their say yet does not per se equal the act of ‘entering’ a discussion: if the written input is neglected, on purpose or inadvertently by the host and other speakers, it equals the ‘token participation’ problem in offline settings. Other limitations are even more subtle and, based on preconstructed assumptions, might escape the awareness of both researchers and participants. Online events are seemingly easy to attend as no travel is assumed. Deprivileged groups of researchers, especially those with care duties, may however be further excluded as effortless organization of participation is suggested to be the norm. To reach beyond inclusive exclusion in research when going online, these challenges call for solutions on different levels. On the *macro* level, growing public mistrust in the foreseeable interplay between governments and major ICT companies offering new tools may call for the development and sponsorship of public online platforms offered for free, and privileged by research funders to provide equitable access, transparency and accountability. On the *meso* level, assumed readiness of all academics to engage in online work, irrespective of other (public or private) responsibilities, may be reconsidered as it reflects specific work contexts and codes of conduct that may not fit all in an equal manner. As easy access may make online research spaces prone to surreptitious sabotage, organizers may raise barriers that limit participation to those who behave ‘properly.’ On the *micro* level, access may be limited further by bandwidth or hardware requirements, by time constraints due to care duties or by a lack of space, silence or peace of mind. This should call on organizers to offer diverse opportunities of presence, both online and offline, and open access opportunities according to different timeframes, spatial possibilities and modes of joining (by sound or text only).

Reflexivity

In online settings, the predesigned schedule and process controlled by the organizers or host might easily undermine the capacity for inviting ‘creative destruction,’ an important element of innovation. A comparison with Latour and Woolgar’s (1979) laborification comes to mind, which, the authors stress, does not necessarily mean a top down formalization of scientific processes. After all, a lot of what is happening in labs is informal and discursive. The same applies to workshops and other co-analysis and co-design settings, conferences and other academic interactions *in situ*, where discussions evolve based on serendipity and disorderly communication. Such conditions foster reflections in which the contextual personal understanding of what is relevant and ethically

acceptable in research or innovation can be linked with generic notions of ‘goodness’ and other social values, which lie at the heart of the RRI development. Such a phronetic take (Loeber 2007) to re-thinking research and innovation is much harder to develop in an online setting. Dialogue and inclusion also require that people ‘feel’ each other, unconsciously signaling and interpreting body language. Much of what is involved in understanding, inspiring and sharing together may be lost in online versions of research-related interactions. Lost too are the ‘deliberative rituals’ of small talk over a meal (Forester 1999) and associated indirect communications that play a role in constructing relationships (Dryzek 2005, 225). Onlineification in contrast brings the risk of alienation: researchers forced to migrate their activities online reported feelings of solitude, even loneliness during Corona-related ‘lockdown’ (Gao and Sai 2020). Reflection is needed to mitigate ethical concerns about online research practices (Swierstra and Rip 2007). Many experience digital meetings, via Zoom or Google Hangouts, to be exhausting (Sander and Bauman 2020) and therefore keep meetings as brief as possible. This forecloses opportunities for reflection on the appropriateness of the emerging new practices, and the new modes or technologies used. Again, on the macro level, reflexivity would require institutional actors and policy makers to address challenges of how research is being done or managed in online environments. On the meso level, all actors in a decision-making position should reflect on the translation process between off-line and online practices. What is lost? What is gained and at what cost? On the micro level, researchers should offer and demand appropriate space for reflection during the online processes to collect experience *in situ* and address challenges as they arise.

Responsiveness

As in the case of doing responsible research offline, RoRI would require the use of the various mechanisms that allow *being responsive* to improved anticipation, reflexivity and inclusion online. Similar to the procedural RRI approach suggested by Owen et al. (2013), applying the precautionary principle, a moratorium or a code of conduct may be appropriate. Methodologies used in participatory technology assessment, technology foresight, value sensitive design or other responsive analysis or research governance options may also be beneficially applied to ‘going online.’ Some technologies may prove to be overly complicated or unfamiliar to some users; this again may limit engagement and distort research results. These factors should be reflected upon when choosing the online setting that best fits academic purpose and service. The choice of tools and technologies should consider frugality or simplicity of use.

RoRI in practice

Our experience and educated imagining may be limited: some of the socio-ethical challenges of onlineification identified above may not occur in practice. Still that does not remove the need of initiating a discussion on a RoRI approach, identifying issues that should be taken into consideration. To that end, in addition to the procedural heuristic of AIRR, the European Commission’s (EC) so-called ‘RRI keys’ (EC 2015) may also offer a foothold for further reflection. Looking from the vantage point of *public engagement*, as observed above, ‘going online’ suggests considerable benefits. Stakeholders may

be included in events and conversations at lower financial and environmental costs (especially since the environmental impact of online data traffic is often bracketed out of the equation). However, online proficiency of different publics should not be taken for granted, therefore appropriate guidance must be offered when going online and using specific online tools. Going online may look as if *open access* is granted as a matter of course, yet it still needs dedicated regulation. Informed consent should be applied to the full use of data generated in online events and processes, and special care should be taken to follow data processing and storing rules, both in application specific and in institutional contexts. Questions of *gender and diversity* are especially important. Going online may imply setbacks for working women who might be more prone to (expectations about) picking up care duties/housework when working at home, in addition to their professional workload, as compared to male housemates. *Science education and literacy* implies needing to organize education about the use of specific online tools and facilitating substantial learning about platforms used, to prevent potential participants from being excluded due to a lack of experience with these. From the perspective of *ethics*, prospective public online platforms should be accessible, intuitive and self-explaining, to minimize exclusion. Diversity of platforms should be upheld by making careful tool choices. Furthermore, decision-makers, researchers, session designers and organizers of larger online events and platforms should be vigilant of the power relations, trust issues and cultural challenges involved in doing and managing research online.

Applying an RRI perspective will help those in charge, we posit, to consciously challenge the lure of online participatory, deliberative research methods and doing and managing research projects online in ways that seemingly offer instant and easy access. RoRI may incite reflection on the way such platforms limit the ability to enter into conversations and amplify hierarchies and power structures, among other reasons by reinforcing a *corporatization* of doing and managing research. If research gets highjacked by corporate interests and falls at the mercy of a purely market oriented logic, the net effect may be an obstruction of inclusive and democratizing dynamics in research and innovation, compared to what is arguably observable in the domain of higher education (cf. Brown 2015). It may lead to an empowering of corporate actors to the extent that they come to dominate how research is being done. Such a *technification* of communication and participation may magnify social divisions, both in terms of access to and inclusion in research. Technification in turn may lead to a further arithmetization of research, as experiential and experimental modes might be substituted by methods that better fit technical requirements. An ill-reflected decision to use online technologies in research may result in a bracketing of many of the social and cultural challenges involved in doing research. The observation that ‘the technical is political, [and hence] the political should be democratic and the democratic should be participatory’ (Moore 2010, 793) should guide decision making about R&I going online, to combat unobserved processes of *de-politization*, just when the evolution of a more democratic research and innovation culture has begun to gain ground, as evidenced in emerging RRI practices and discourses.

With this listing of issues, we do not aspire or pretend to be exhaustive. We rather intend to open up the dialogue on *Responsible online Research and Innovation*. Beyond the fact that more research and empirical evidence is required for RoRI, what emerges from the reflections in this paper is that responsibility in ‘going online’ does not only rest with researchers and organizers. Some of the challenges may be addressed while

doing research, but other issues can only be dealt with via research policy or governance. Thus, this is a call to address responsible online research and innovation or responsible 'going online' on all levels and by all actors involved.

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