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11: DATA JOURNALISM AND THE ETHICS OF OPEN SOURCE

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Introduction

Data journalism has enjoyed an increasing amount of attention and success both in media practice and in journalism research. Unlike traditional journalism, which only recently adopted concepts such as openness and accountability, data journalism seems to be deeply rooted in a culture of open source that comes with increased transparency, shareability and participation. This chapter analyzes the question whether and to what extent data journalists effectively reflect the ethical notions of the open source culture in their everyday work routines and what kind of best practices are in place in order to minimize the ethical challenges they are confronted with while accessing, analyzing and publishing data. The proposed chapter offers therefore a structured insight into whether and how data journalists implement the four normative principles - transparency, participation, tinkering, and iteration - that the concept of open source implies. The chapter also highlights and discusses key ethical standards such as sharing source-codes or granting third parties with complete access to raw datasets.

According to Mayer-Schönberger and Cukier,¹ the growing use of data provokes 'a revolution that will transform how we live, work and think'. The datafication of society - the attempt to transform everything into a specific data format in order to be quantified² - is a fundamental process because it supersedes both in scope and style the ways in which reality is seen and constructed. This new data abundance is not only reflected in the reliance on data as a secular belief,³ but also in the increasingly dominant position of algorithms as cultural artifacts that announce a new social order.⁴

Datafication is therefore an all-encompassing transformation that permeates society as a whole. Journalism is no exception to this trend. In addition, the journalistic field is a particularly interesting object of study to observe datafication processes within society: first, because journalism observes datafication in society and brings the related issues into the public sphere. Second, because journalism increasingly embraces data-driven instruments connected to these processes - data and algorithms - to observe and shed light on the datafication in the wider society. These changes in journalism practice lead to new forms of data journalism

1 Victor Mayer-Schönberger and Kenneth Cukier, *Big Data: A Revolution That Will Transform How We Live, Work and Think*. London: Murray, 2013.

2 José Van Dijk, 'Foreword', in Mirko Tobias Schäfer and Karin van Es (eds), *The Datafied Society*, Amsterdam: Amsterdam University Press, 2017, p. 11.

3 José van Dijk, 'Datafication, dataism and dataveillance: Big Data between scientific paradigm and ideology', *Surveillance & Society* 12.2 (2014): 197-208.

4 William Uricchio, 'Data, Culture and the Ambivalence of Algorithms', in Mirko Tobias Schäfer and Karin van Es (eds), *The Datafied Society*, Amsterdam: Amsterdam University Press, 2017, p. 126.

that offer new opportunities such as combing through data from public administrations,⁵ or uncovering wrongdoings.⁶ Data journalism has therefore enjoyed an increasing amount of attention and success in media practice.

The instruments used to observe datafication processes are often developed and brought into the news media by actors from outside the journalistic field such as programmers, computer scientists or hackers. These actors have not been socialized in newsrooms and have different cultural references that increasingly shape contemporary journalism, entailing not only new roles such as hacker journalists,⁷ but also changes in the current journalistic epistemology: unlike traditional journalism, data journalism is rooted in a culture of open source that comes with increased transparency, shareability and participation.

This chapter analyzes therefore the question to what extent data journalists reflect the ethical notions of the open source culture in their everyday work routines. By applying Lewis and Usher's four normative values that are necessary to implement the principles of open source in the journalistic field - transparency, participation, tinkering, and iteration - the chapter studies whether Swiss and Italian data journalists are adhering to the notion of open source and, in addition, what kind of ethical quandaries they are facing.⁸

Data Journalism and Open Source

The growing academic literature has prompted many definitions of data journalism. Nevertheless, I understand data journalism, following Coddington's definition, as a 'hybrid form [of journalism] that encompasses statistical analysis, computer science, visualization and web design, and reporting'.⁹ The hybridity of data journalism is given by the combination of different roles and tasks, often carried out by different actors and not only by journalists. This kind of hybridity is also reflected in other scholars' definitions: Splendore for instance emphasizes the combination of storytelling and programming by defining data journalism as 'a form of storytelling, where traditional journalistic working methods are mixed with data analysis, programming, and visualization techniques'.¹⁰ However, even if many definitions of data journalism include similar elements such as reporting, programming, statistics and visualizations, 'an all-encompassing working definition of data journalism is rather difficult to achieve'.¹¹ This is due to the fact that the field of research is relatively young and, in addi-

5 Colin Porlezza, 'Dall'open journalism all'open government? Il ruolo del data journalism nella trasparenza e nella partecipazione', *Problemi dell'informazione* 1 (2016): 167-194.

6 Eddy Borges-Rey, 'Unravelling data journalism', *Journalism Practice* 10.7 (2017): 833-843.

7 Nikki Usher, *Interactive Journalism: Hackers, Data, and Code*, Champaign: University of Illinois Press, 2016.

8 Seth C. Lewis and Nikki Usher, 'Open source and journalism: Toward new frameworks for imagining news innovation', *Media, Culture & Society* 35.5 (2013): 602-619.

9 Mark Coddington, 'Clarifying Journalism's Quantitative Turn: A Typology for Evaluating Data Journalism, Computational Journalism, and Computer-Assisted Reporting', *Digital Journalism* 3.3 (2014): 334.

10 Sergio Splendore, 'Quantitatively Oriented Forms of Journalism and Their Epistemology'. *Sociology Compass* (2016): online first.

11 Borges-Rey, 'Unravelling data journalism', 834.

tion, scholars from different disciplines such as journalism studies, communication sciences, informatics or economics are studying the phenomenon.

Journalism has radically changed in the last twenty years, particularly with respect to its *openness*. There are different reasons for the disruption of the 'fortress-journalism'.¹² One of the first breaches in the longtime impenetrable walls of the newsrooms was the growing phenomenon of citizen journalism that understands users not only as consumers, but also as active producers of information.¹³ This change in perception contributed to the development of a new journalistic paradigm that transcends the idea that all aspects of news work are limited to professional journalists only. Especially the emerging practice of crowdsourcing - an open call for users to participate in certain online activities, for instance in collecting information - was one of the main drivers of participatory forms of journalism.¹⁴

These changes in journalism, as Lewis pointed out, triggered the emergence of an initial form of 'open journalism' based on contributions, or in the case of catastrophes and emergencies, of an information *network*.¹⁵ However, this kind of open journalism relies more on forms of participation or distributed knowledge in the sense of Singer et al.: 'People inside and outside the newsroom are engaged in communicating not only to, but also with, one another. In doing so, they all are participating in the ongoing processes of creating a news website and building a multifaceted community'.¹⁶ Yet, professional journalism remained resistant to change for a very long time, and participatory journalism - understood as a shared news production process between professionals and amateurs - remained an exception rather than the rule. Williams et al. showed that newsrooms tend to co-opt participatory practices to suit traditional routines and ideals.¹⁷ In other cases, journalists tended to see users simply as 'active recipients' who act only on the grounds of what has been reported.¹⁸

Even if some newsrooms are still hesitant to include participatory instruments into their news production, or dismissed their collaborative experiments, there is a growing body of evidence that 'journalism's ideological commitment to control, rooted in an institutional instinct toward protecting legitimacy and boundaries, may be giving way to a hybrid logic of adaptability and

12 Peter Horrocks, 'The end of fortress journalism', in Charles Miller (ed.), *The future of journalism*, London: BBC College of Journalism, 2009, pp. 6-17.

13 Dan Gillmor, *We the Media: Grassroots Journalism by the People, for the People*, Sebastopol CA: O'Reilly Media, 2004.

14 Tanja Aitamurto, 'Motivation factors in crowdsourcing journalism: social impact, social change, and peer learning', *International Journal of Communication* 9 (2015): 3523-3543.

15 Dharma Dailey and Kate Starbird, 'Journalists as crowdsourcerers: responding to crisis by reporting with a crowd', *Computer Supported Cooperative Work* 23.4 (2014): 445-481.

16 Jane Singer et al, *Participatory Journalism: Guarding Open Gates at Online Newspapers*, Chichester: John Wiley, 2011.

17 Andy Williams, Claire Wardle and Karin Wahl-Jorgensen, "Have they got news for us?" Audience revolution or business as usual at the BBC?" *Journalism Practice*, 5.1 (2011): 85-99.

18 Alfred Hermida, 'Social journalism: exploring how social media is shaping journalism', in Eugenia Siapera and Andreas Veglis (eds), *The Handbook of Global Online Journalism*, Oxford: Wiley-Blackwell, 2012, pp. 309-328.

openness'.¹⁹ Lewis and Usher even note that journalists increasingly find normative purpose in transparency and participation, a culture that is very similar to the open-source technology culture,²⁰ which is based on a wider understanding of openness in terms of sharing collected data, being transparent about their use, and being actively interactive with users and other journalists.²¹

This slow change in the adaptation of a culture of openness - to see users as peers rather than as an amorphous and anonymous group of consumers or to understand other journalists as colleagues within a network rather than as competitors - was in part due to the rise of new technologies such as social media and their affordances and culture based on participation. One of the most famous social media journalists, Andy Carvin, once described his own work as 'an open-source newsroom that anyone can come and participate in, or observe the process'.²² In addition, the slow shift to more open journalism in terms of transparency, sharing and collaboration across different newsrooms or divisions may well be due to the entrance of new actors into the core field of journalism. These actors belong to different professions and have thus been socialized differently with a different professional culture.

This process can be well observed in data journalism. Many quantitatively oriented journalists have a background in informatics, and only subsequently moved, through learning by doing and by being part of a data journalism team, to a more journalistically oriented role. This means that new actors, some of whom have not been influenced and socialized by journalistic culture in the first place, have now entered the institutionalized field of journalism, influencing in turn its practices, routines, professional norms and culture with notions originating from other professions. Russell has shown how hackers and hacktivists, among others, are playing an increasingly important role in shaping contemporary journalism, 'expanding what it means to be involved in the production of news and, in the process, gaining influence over how traditional news stories and genres are constructed and circulated'.²³

However, the field of data journalism evolved unevenly both across and within different media systems, given that news organizations may not be willing or able to offer the necessary resources in terms of time and money either to sustain a specialized team or to develop a sufficient data literacy among their employed journalists - also due to traditional norms and practices still dominating the newsrooms.²⁴ This means that the openness of data journalism not only depends on the individual dispositions of journalists, but also on organizational logics and constraints that may severely limit the specific implementation of notions such as

19 Seth C. Lewis, 'The tension between professional control and open participation', *Information, Communication & Society* 15.6 (2012): 836-866.

20 Seth C. Lewis and Nikki Usher, 'Open source and journalism: Toward new frameworks for imagining news innovation', p. 851.

21 Usher, *Interactive Journalism: Hackers, Data, and Code*.

22 Jeff Sonderman, 'Andy Carvin explains how Twitter is his "open-source newsroom"', *Poynter*, <https://www.poynter.org/news/andy-carvin-explains-how-twitter-his-open-source-newsroom>.

23 Adrienne Russell, *Journalism as activism. Recoding media power*, Cambridge: Polity Press, 2016, p. 7.

24 Alfred Hermida and Lynn Young, 'Finding the data unicorn. A hierarchy of hybridity in data and computational journalism', *Digital Journalism* 5.2 (2016): 159-176.

open source. Nevertheless, openness has become a new industry standard as professional journalism practice opens up its boundaries not only to participation in news work, but also in the search for future opportunities to solve journalism's many issues.²⁵

One of the main traits of these new actors, mainly technologists, entering the field is a clear orientation towards the concept of open source, particularly if their background is in informatics. The general idea behind the concept of open source is that free sharing, collaborative production and free distribution produce the best results in terms of transparency, use and usability, particularly because users are involved in the production process.²⁶ According to the Open Source Initiative, open source does not only mean allowing access to the source code. It also means that the distribution of the code must comply with specific criteria such as free re-distribution, allowing modifications and derived works, no discrimination against persons, groups and fields of endeavor, and other aspects.²⁷ However, the concept of open source goes well beyond questions of licensing. Coleman understands open source as an aspiration towards open programming, grounded on the philosophical belief in social responsibility through freedom and openness.²⁸

What makes open source such a captivating concept is its dual significance both as a guideline for the practical development of software programming, and the underlying ethos of a culture of free and open distribution, from which society can benefit. This is why open source is mainly 'characterized by a non-market, non-contractual transfer of knowledge among actors, sharing relevant information with a non-definite set of other actors without any immediate recompense'.²⁹ In this analysis, open source is thus understood as a dual orientation towards open, transparent and collaborative *production* as well as a belief in the social responsibility and freedom of sharing and openness in the *use* of the produced information.

It is in this sense that Lewis and Usher understand open source both as an 'architectural framework and a cultural context'.³⁰ This dual implication of open source as both *materiality* (what is actually produced) and *culture* (certain normative values such as the ethos of sharing without any immediate recompense) is particularly relevant when it comes to its implementation in journalism: openness and collaboration are therefore not just to be seen as descriptors of a specific journalistic practice, but as a moral principle in the sense of an 'ethical volunteerism' and a 'desire for open technologies and a philosophical belief in serving the public good through openness'.³¹

25 Seth C. Lewis, 'Journalism innovation and participation: an analysis of the Knight News Challenge', *International Journal of Communication* 5 (2011): 1623-1648.

26 See Eric S. Raymond, *The cathedral and the bazaar: Musings on Linux and open source by an accidental revolutionary*. Sebastopol CA: O'Reilly, 2001.

27 For the full definition visit: <https://opensource.org/osd>.

28 Gabriella Coleman, *Coding Freedom: The Ethics and Aesthetics of Hacking*, Princeton, NJ: Princeton University Press, 2012.

29 Kerstin Balka, Christina Raasch and Cornelius Herstatt, 'Open source enters the world of atoms: a statistical analysis of open design', *First Monday* 14.11 (2009), <http://firstmonday.org/ojs/index.php/fm/article/view/2670>.

30 Lewis and Usher, 'Open source and journalism: Toward new frameworks for imagining news innovation', p. 606.

31 Seth C. Lewis and Oscar Westlund, 'Big data and journalism. Epistemology, expertise, economics, and

Especially in the field of data journalism, where different actors with diverse backgrounds work together, it is a useful approach in order to gauge how journalists, newsrooms and news organizations are collaborating with 'the clear purpose of contributing to a joint development'.³² These collaborations that transcend traditional and established boundaries contribute to the evolution of the traditional journalism culture,³³ up to the point where it is possible to consider these new forms of reporting relying on data as a 'trading zone',³⁴ where the crossing of professional boundaries occurs not only more often, but it gets also increasingly accepted. The increasing collaborative setting of journalism reflects, at the same time, the fact that open journalism as well as data journalism are both the consequence - and the cause - of the enlargement of the journalistic field. Deuze and Witschge pointed out that 'journalism takes place in increasingly networked settings, in formal as well as informal contexts, involving a wide range of actors and actants in various instances of both paid and free labor (...) covering news in real-time across multiplying platforms, often in competition or collaboration with publics'.³⁵

This groundbreaking transformation of journalism in terms of openness and collaboration require a broader normative perspective in relation to the concept of open source. Lewis and Usher developed a specific framework of four normative values that are necessary to implement the principles of open source in the journalistic field: transparency, participation, tinkering, and iteration.³⁶

Applying an open source approach means first of all to be *transparent* about what one is doing. In the case of journalism it means not only to be transparent about the coding, but also about the production routines of journalism. Data and information (also with regard to the adopted source codes) should be freely shared for others to use. Journalism itself strives for transparency in society and should therefore act accordingly, particularly as digital technologies have enhanced the opportunities of opening up the news production.³⁷ However, transparency as part of an open source concept pushes journalism even further, as news production becomes both 'liquid' and dynamic: a continuous, transparent and networked process of information, open to participation and that can be held accountable by the users.

Participation means that the production process is relying on a distributed network of different contributors. This is also relevant for ethical frameworks because journalism is shifting

ethics', *Digital Journalism* 3.3 (2015): 321-330.

32 Ibid.

33 Matt Carlson and Seth C. Lewis (eds), *Boundaries of Journalism. Professionalism, Practices and Participation*, London: Routledge, 2015.

34 Seth C. Lewis and Nikki Usher, 'Code, Collaboration, and the Future of Journalism', *Digital Journalism* 2.3 (2014): 383-393.

35 Mark Deuze and Tamara Witschge, 'Beyond journalism: Theorizing the transformation of journalism', *Journalism* 19.2 (2017): 165-181.

36 Seth C. Lewis and Nikki Usher, 'Open source and journalism: Toward new frameworks for imagining news innovation', *New Media & Society* 35.5 (2013): 602-619.

37 Angela Phillips, 'Transparency and the new ethics of journalism', *Journalism Practice* 4.3 (2010): 373-382.

from a traditional gatekeeper ethics towards a relational ethics.³⁸ Participation is an inherent dimension of open source because it relies on the fact that an increased number of collaborators and collective intelligence produce better results. Applied to the field of journalism this means that users have more opportunities to collaborate with professional journalists or can at least to monitor their work. The role of users becomes therefore much more active and interlinked with the newsroom.

The normative value of *tinkering* implies playfulness as well as an inclination towards experimentation. This norm becomes particularly relevant as journalism gets increasingly networked due to new actors entering journalism. The result is a form of hybrid journalism, where different actors such as journalists, hackers or whistleblowing platforms, with different professional roles and cultures (for instance in the case of the 'Panama Papers' or the Offshore Leaks) are working together in the public interest. *Iteration* is a norm closely related to tinkering and implies 'the freedom to fail'.³⁹ While innovation processes in established news organizations are mostly bound to centralized and top-down processes, iterative methods focus more strongly on the process rather than the actual outcome, leaving the involved actors room for testing. This normative framework is useful to analyze the ethical challenges of data journalists, given that they are working in a collaborative, often experimental and transparency-driven environment.

The Study

In order to answer the research goal, we carried out several problem-centered interviews mostly via Skype with 20 data journalists in Switzerland and Italy between the end of 2015 and the end of 2017.⁴⁰ The interviews focused on four main areas: their professional career paths, the production process in relation to collaborations, their normative perspectives about data journalism, and ethical issues. The interviews were recorded and subsequently partially transcribed. The interviewed data journalists are working full-time both for established news organizations and specialized agencies. The sampling method was twofold: initially we carried out a desktop research to identify and collect the names of data journalists currently working in Switzerland and Italy. We then interviewed specific data journalists and asked the interviewees to provide us with the names of other data journalists. This snowball sampling method is suited to analyze well-connected communities like those of data journalists.⁴¹

The comparison between Switzerland and Italy is not only interesting due to the fact that they belong to different journalistic cultures, but also because data journalism evolved differently in the two countries. In Switzerland, data journalism has gradually entered established news organizations throughout the last couple of years. However, due to the small Swiss media

38 Jane Singer, 'Norms and the Network: Journalistic Ethics in a Shared Media Space', in Christopher Meyers (ed.), *Journalism Ethics: A Philosophical Approach*, Oxford: Oxford University Press, 2010, pp. 117-129.

39 Seth C. Lewis and Nikki Usher, 'Open source and journalism: Toward new frameworks for imagining news innovation', p. 608.

40 The interviews in Italy were carried out by my esteemed colleague Sergio Splendore.

41 Howard Becker, *Outsiders: Studies in the Sociology of Deviance*, New York: Macmillan, 1963.

market, data journalism emerged with a considerable delay compared to other countries in Europe. In Italy, data journalism is already a highly professional sub-field, even if the journalistic education is (still) not well developed. Additionally, data journalism's origin lies outside the established field of journalism: in the beginning, data journalists were mainly working for specialized agencies and not for legacy news media.⁴²

The Ethics of Transparency

Transparency is a well-established concept in both countries. All interviewed data journalists declare that one of the core tenets of the work of data journalists consists in being absolutely transparent about their practice. However, there are some differences when it comes to the scope of transparency. Not in every case do Swiss data journalists share raw data, and neither do they apply complete transparency when it comes to sharing source codes. Although some newsrooms have a GitHub account, where other data journalists or interested citizens can access the code, it is not published for every story. The main reason for not doing so is twofold: on the one hand data journalists argue that there is only a limited interest for this information. On the other hand, news organizations put some constraints to the transparency norm in terms of sharing raw data and source codes in order to avoid freeriding from competitors. However, data journalists cover an active role when it comes to sharing data and fostering a culture of transparency within the news organization.

In Italy, the transparency norm is universally shared among the community of data journalists: 'I absolutely agree with the idea of open journalism. It would be a paradigmatic change in journalism if the production processes were open and transparent.' (I-J3). This can also be observed in the specific mention of the relevance of an *open source approach*. Moreover, for Italian data journalists transparency is a central issue, which is also reflected in their journalistic role conception that is, compared to their Swiss colleagues, far more activist in support of transparency and the availability of open data: 'We want data to analyze!' (I-J1). The clear disposition towards transparency by granting third parties with complete access to raw datasets might also be traced back to the fact that most data journalists in Italy, unlike their Swiss counterparts, have a background in informatics and were thus socialized in a professional culture that has fewer issues with openness.

At the same time, the fact that most data journalists have a background in informatics can become a matter of concern: data journalists might be forced to handle sensitive data. Most data journalists have never been trained on how to handle such data and how to protect it from hacking or surveillance. The same applies to privacy issues that occur in the case of leaks. The protection of anonymity and of sources cannot always be guaranteed because most data journalists in both countries have never been 'educated' in matters of data protection - even if the situation is slowly changing, also due to the discoveries in the wake of the Snowden revelations:

42 Sergio Splendore, 'Closed data! Il giornalismo italiano alla ricerca di dati', *Problemi dell'Informazione* 1 (2016): 195-214.

'The freelance data journalist does not have the requested skills to protect the source. This culture in Italy is still rare, but it would be vital to convince those working in the public administration to have more trust in journalists and to offer more data.' (I-J3).

Open source can thus become a serious concern in journalism as well. Particularly nowadays, where journalism is seen as a 'dynamic set of practices and expectations - a profession in a permanent process of becoming', both organizations and individuals need to develop a normative framework that lives up to the standards of a networked, 'liquid' and flexible journalism.

The Ethics of Participation

Participation implies the collaboration with different actors both within and across the boundaries of news organizations. The findings show that Swiss and Italian data journalists apply different strategies when it comes to the participation of users, but demonstrate similar beliefs for collaborative newswork within the boundaries of news organizations. In Switzerland, data journalists declare that participatory strategies that involve users more actively are not central, except maybe for the generation of new ideas. Collaborative strategies like crowdsourcing are thus the exception. With regard to internal collaborations, many data journalists admitted that they served somehow as 'troubleshooters' for problems related to informatics, visuals and, above all, statistics. Even if this is not the form of collaboration originally intended by the normative framework, it nevertheless allows data journalists to propagate specific normative assumptions like transparency within the organization.

In Italy, data journalists specifically rely on the contributions of users, which are seen as co-constructors of reality. In addition, collaborations that go beyond the boundaries of the news organizations are standard. Compared to the Swiss situation, this is easier to implement because in most cases data journalists in Italy are working for startups or agencies. These organizations are considerably smaller than their legacy counterparts and very often collaborations with external experts are paramount and therefore part of the job. Such informal collaborations occur also within the newsrooms, given that the collaborators of the agencies are not exclusively journalists: often they include hackers, programmers, visualization experts and statisticians as well. Crossing organizational boundaries is a normal procedure, something legacy news media in Switzerland are still struggling with because - even informal - collaborations are often not tolerated.

The Ethics of Tinkering

The biggest differences between Switzerland and Italy can be observed with regard to the norm of tinkering. Given that Swiss data journalism mainly developed within established news organizations, the room for experiments is limited compared to startups or agencies, where experimenting and a drive for innovation is a main motivation. In Italy, informal collaborations particularly for experimental reasons are regarded as absolutely central, not only to further develop products and services, but eventually to stay in business. Such experimental collaborations are thus fostered either through networks like Hacks/Hackers or through events like hackathons. There are still considerable differences with regard to this kind of experimental

collaboration through established networks between Switzerland and Italy. Nonetheless, Swiss newsrooms started to organize and to participate in similar events like Hacks/Hackers and hackathons during the last couple of years.⁴³ Even large news organizations in Switzerland such as Tamedia or the Neue Zürcher Zeitung collaborate with these networks and offer room for meetings and discussions.

The Ethics of Iteration

Iteration, or the freedom to fail, presupposes the possibility to experiment. Even if some news organizations allow and invest in experiments, the expected outcomes may differ. Compared to most of their legacy counterparts, small agencies or journalism startups are considerably better equipped when it comes to experimenting without expecting tangible results in the first place. It is in the DNA of startups that they have to continuously evolve and come up with new and innovative ideas: first to go beyond a culture of resistance, and second to avoid an innovation gap that might occur more rapidly for established news organizations that might even detain a quasi-monopolistic status. Particularly journalism startups with their focus on entrepreneurial thinking are more used to reflections on how to do things differently - a rather difficult task in newsrooms of established news media with their strong focus on daily news production. Italian data journalism startups and agencies are thus at the forefront when it comes to implementing strategies that put innovations into place, changing organizations for the better.

Conclusion

The chapter offered an insight into whether and how data journalists in Italy and Switzerland implement four normative principles related to the ethics of open-source: transparency, participation, tinkering and iteration. Most issues are not actually related to differences in the individual moral compass of data journalists, but to the structures they work within. News organizations in Switzerland tend to organize the work of their journalists in traditional ways, largely blocking the development of networks of 'competitor-colleagues'.⁴⁴ While in Italy data journalists working in agencies are free from such constraints, established news organizations still struggle to cope with the new and networked news ecosystem that implies a different approach to the role of news media in society and the so called gatekeeper ethics. These structural conditions put serious constraints to the implementation of an ethical framework based on open source.

The structural constraints can also be observed when it comes to experimentation in terms of tinkering and iteration. Even if Swiss news organizations have considerably improved on experimentation for instance within larger networks such as Hacks/Hackers, there is still a gap in terms of *entrepreneurial thinking*, particularly among data journalists working in larger news organizations. The main issue with an entrepreneurial approach, particularly within traditional

⁴³ See for instance the SRG SSR, 'Hackdays' <https://www.hackdays.ch/>.

⁴⁴ Mark Deuze and Tamara Witschge, 'Beyond journalism: Theorizing the transformation of journalism', p. 176.

news organizations is the fact that informal collaborations and networks often transcend the boundaries of news organizations - diminishing the organizational and managerial control of news work. Nevertheless, both the more networked approach of Italian agencies as well as the traditional institutional approach can be successful, as news organizations in Italy and Switzerland have won Data Journalism Awards in the past.

However, news organizations cannot be blamed for all the ethical constraints data journalists are struggling with. Some of them are also due to missing individual skills that data journalists have never had the opportunity to learn: data journalists coming from traditional newsrooms are rarely trained in data protection techniques against hacking or surveillance. On the other hand, data journalists with an informatics background might have no problems with openness and participation, but lack knowledge in journalism ethics with regard to handling sensitive information. These educational shortcomings entail ethical issues with regard to data and source protection.

The findings show that the emergence of data journalism within the institutionalized field of journalism - although some organizational backfiring - fosters the normative framework of open source. Taking into account the increasing datafication of journalism - and of society at large - it is likely to remain here to stay. The concept of open source offers to journalism, as it gets more networked, the opportunity to adopt specific values in a news ecosystem that relies more and more on a participatory digital media culture. In any case, open source has to be thought of, as Lewis and Usher affirm, as both an architecture and a culture, that is to say, 'as a structural retooling of news technologies and user interfaces, and as a normative rearticulation of what journalism means in a networked media setting'.⁴⁵ In this sense, open source offers the opportunity to produce *good data journalism*.

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45 Seth C. Lewis and Nikki Usher, 'Code, Collaboration, And The Future Of Journalism'.

Dailey, Dharma and Kate Starbird. 'Journalists as crowdsourcerers: responding to crisis by reporting with a crowd', *Computer Supported Cooperative Work* 23.4 (2014): 445-481.

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