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## Open Source Investigations and the Technology-Driven Knowledge Controversy in Human Rights Fact-Finding<sup>1</sup>

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It's 2018. There's been yet another attack in the Syrian conflict - this time in Douma, Eastern Ghouta, where a bombing has left the marketplace devastated. A team of student investigators have been trying to identify the position of a local hospital after they located a video on Twitter showing dozens of heavily injured, hospitalized individuals. These students belong to the Digital Verification Corps (DVC), Amnesty International's global project to train the next generation of human rights investigators at several university campuses worldwide. DVC students discover and verify open source information to help Amnesty researchers find evidence of human rights abuses. The video in question has been tweeted by a number of different users, each time accompanied by written text claiming that it documents the victims of the marketplace bombing. Should the students be able to geolocate the hospital, they will be better able to assess the scale of the attack through an indication of the minimum number of victims – information they can pass on to Amnesty's investigators, who are trying to establish the facts of the event. The video gives little away; shot from inside the hospital, few geographical clues are revealed. “What's that?” says one of the students, pointing at two or three frames in the video that reveal a child in polka-dot trousers being carried into the hospital. Scrolling back to another video the team had geolocated earlier that day, the students compare this child with a similar-looking child in similar-looking polka-dot trousers being carried away from the scene of the marketplace attack. The student investigators excitedly agree: They've found a match that helps them establish the location of the hospital.

This scenario — student investigators helping Amnesty's research by analyzing civilian witness video posted publicly online — was unimaginable only a few years ago. Investigations based on the proliferation of open source information like the Twitter video mentioned above have transformed the established practices of human rights fact-finding. As we explain below, this transformation is in terms of who is involved (amateurs and technologists as well as professional human rights fact-finders), the data under scrutiny (including social media content and publicly-available databases such as Google Earth Pro), the methods used (such as cross-referencing the metadata of open source civilian witness content), and the norms about knowledge production that participants bring to the table (an emphasis on quantitative versus qualitative, for example).

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One way to understand this sort of transformation is as a type of knowledge controversy. A knowledge controversy can occur when previously settled and taken-for-granted practices of knowledge production (like the human rights evidence produced through the practice of fact-finding) are unsettled and questioned because of the introduction of a novel element in the form of new participants, data, methods and/or norms.<sup>2</sup> The rise of open source investigations is part of a knowledge controversy in human rights fact-finding. This particular knowledge controversy is driven by the adoption of new technologies in the production and evaluation of human rights information for evidence in advocacy and courts.

In this chapter, we first describe the settled practices of human rights fact-finding that open source investigations have disrupted. Although the authority to shape these practices is centralized largely with Western human rights institutions populated by professional experts, the more decentralized underpinnings of open source investigation – namely, the use of information produced by civilian witnesses and through diverse networks – have an equally long history. We go on to detail how the rise of new technologies in human rights fact-finding has allowed for the participation of new actors in the form of civilian witnesses and analysts and necessitated the participation of others in the form of technologists and machine processes. These new actors bring with them not only new data and new methods, but also new norms about what human rights knowledge should be. The clash of these new elements with established practices produces a knowledge controversy in which much is possible and much is at stake. In the subsequent chapter section, we take a closer look at what is at stake through examining the power relations within human rights fact-finding revealed and disturbed by this knowledge controversy. Namely, we look at the power to shape human rights methodology, because methodology rules in and rules out particular types of human rights information with respect to evidence. It thus rules in and rules out particular types of corresponding subjects and witnesses of violations with respect to access to human rights mechanisms that can help them, in turn, speak truth to power. Ultimately, we are concerned with the impact of these power relations on pluralism, or the variety and volume of voices that can speak and be heard, both in terms of shaping the practices of human rights fact-finding, and in terms of access to human rights mechanisms that help subjects and witnesses speak truth to power.

### [Established human rights practices disrupted by the knowledge controversy](#)

The appearance of a knowledge controversy marks the shattering of a prior consensus about an established practice of knowledge production and thus the type of knowledge produced by that practice.<sup>3</sup> In this section, we provide an overview of the settled and established practices for producing human rights knowledge disrupted by the adoption of new technologies. These practices, circumscribed by a particular set of actors and a particular set of methods, emerged from a set of institutions who have come to dominate human rights fact-finding in the international arena.<sup>4</sup> At first glance, open source

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<sup>2</sup> Sarah J Whatmore, 'Mapping Knowledge Controversies : Science, Democracy and the Redistribution of Expertise' [2009] *Progress in Human Geography* 1; Andrew Barry, 'Political Situations: Knowledge Controversies in Transnational Governance' (2012) 6 *Critical Policy Studies* 324.

<sup>3</sup> Whatmore (n 1); Barry (n 1).

<sup>4</sup> Diane Orentlicher, 'International Norms in Human Rights Fact-Finding' in Philip Alston and Sarah Knuckey (eds), *The Transformation of Human Rights Fact-Finding* (Oxford University Press 2016); Dustin N Sharp,

investigations seem a radical departure from these established, orthodox practices, but a longer gaze sees this new development as an extension of two other long-established practices in human rights fact-finding: the use of civilian witness information for evidence as well as collaboration among a diverse array of networked individuals and institutions.

The dominant institutional framework drawing on human rights fact-finding has consolidated over time, growing increasingly bureaucratic and elite. Early fact-finding involved select diplomats and legal experts conducting field visits and reporting their findings to intergovernmental organizations like the United Nations.<sup>5</sup> Following high level concerns critiquing human rights fact-finding for – in the words of a 1964 United Nations Special Committee debate – its “scantiness and unclearness,” a number of attempts were made to standardize fact-finding methodology.<sup>6</sup> Under the influence of prominent human rights NGOs, fact-finding evolved to focus on witness interviewing, often with or through known sources with established credibility.<sup>7</sup> Upon returning from the field, these investigators wrote up their reports, which were made public in order to shame clearly-identified states and other actors into complying with human rights norms. Fact-finding in these international NGOs continues to be conducted largely by elite, often Ivy League-educated investigators who usually have been trained in law; even those from non-Western nations have often received their educations in the West.<sup>8</sup> They maintain close relationships with other elite members of the political and press classes in order to more effectively lobby them behind closed doors.<sup>9</sup> At intergovernmental bodies, similar investigations are undertaken by sets of experts belonging to each of the ten UN human rights treaty bodies. These include, for example, fact-finding missions and investigations carried out by the UN Office of the High Commissioner of Human Rights on behalf of the UN Human Rights Council, the General Assembly, and the Security Council. The formal and bureaucratic nature of these institutions developed in part as a counterweight to the formal and bureaucratic targets of their reports: states.

In both intergovernmental and international NGO institutional contexts, an insistence on the prescriptive and legalistic as experts seek to construct what appear to be objective and undeniable facts has become the dominant *modus operandi* of human rights institutions.<sup>10</sup> This insistence, as Philip Alston describes it, “risked producing a somewhat formulaic and relatively inflexible style and format.”<sup>11</sup> That said, these orthodox fact-finding practices, undertaken by dominant institutions, are not necessarily taken up by other actors working in human rights and more broadly in emancipatory projects.<sup>12</sup> For example, post-war anti-colonialists avoided the use of human rights discourse, despite decolonisation

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‘Human Rights Fact-Finding and the Reproduction of Hierarchies’ in Philip Alston and Sarah Knuckey (eds), *The Transformation of Human Rights Fact-Finding* (Oxford University Press 2016).

<sup>5</sup> Philip Alston, ‘Introduction: Third Generation Human Rights Fact-Finding’, *Proceedings of the Annual Meeting (American Society of International Law)* (2013).

<sup>6</sup> BG Ramcharan, ‘Introduction’, *International Law and Fact-Finding in the Field of Human Rights* (Martinus Nijhoff Publishers 1982) 1; Philip Alston and Sarah Knuckey, ‘The Transformation of Human Rights Fact-Finding: Challenges and Opportunities’ in Philip Alston and Sarah Knuckey (eds), *The Transformation of Human Rights Fact-Finding* (Oxford University Press 2016).

<sup>7</sup> Alston (n 4).

<sup>8</sup> Obiora Okafor, ‘International Human Rights Fact-Finding Praxis: A TWAIL Perspective’ in Philip Alston and Sarah Knuckey (eds), *The Transformation of Human Rights Fact-Finding* (Oxford University Press 2016).

<sup>9</sup> Sharp (n 3).

<sup>10</sup> *ibid.*

<sup>11</sup> Alston (n 4) 61.

<sup>12</sup> Alston and Knuckey (n 5); Orentlicher (n 3).

emerging during and in the immediate aftermath of the establishment of the Universal Declaration of Human Rights in 1948. Instead, self-determination was the operative language, working towards a collective vision of liberation, rather than universal individual rights. This was, in part, because anti-colonialists remembered all too clearly that Western concepts of emancipation were the backbone of colonialism's justification.<sup>13</sup> Still, the dominant discourses, practices, and institutions of human rights tend to eclipse these alternative emancipatory ideas and movements, with the consequence not only of diverting attention and funds, but also of depreciating alternative actors, methods, and norms of knowledge production.<sup>14</sup>

The multiple actors, multiple methods and diverse data of open source human rights investigations may seem at odds with these established practices. Even at the core of bureaucratic and standardized human rights fact-finding, however, we see that open source investigation is as much a continuation of as a break from these established practices, which have always featured the use of civilian witness information and networked collaboration. For example, in one of the earliest accounts of the mobilization of civilian witness information in advocacy and accountability, the British human rights campaigner Emily Hobhouse arduously documented the Second South African War of 1899-1902. This war was between Great Britain and the two Boer republics over the expansion of British forces in South Africa and control over the Transvaal gold mines. About her attempts to document the conditions of refugee camps run by the British that had deteriorated into concentration camps, Hobhouse said, "It is hardly possible to draw up an ordinary conventional report." Instead, she relied on a combination of fieldnotes, letters of correspondence, and statements by Boer women and children, along with her photography.<sup>15</sup>

As camera use became more common among the general public, spontaneous acts of civilian witnessing increased. A searing example is the 31-year-old plumber George Holliday's capture on his camcorder of the Los Angeles Police Department brutally beating Rodney King after stopping him for a traffic violation on March 3rd 1991. Although the responsible officer was eventually acquitted, the electrifying images seen around the world made the power of citizen media to shed light on human rights struggles palpable. They presaged the new forms of data pulled into human rights fact-finding through open source investigations, brought forth especially by advancements in camera-phones and social media platforms.

Today, civilian witness data can be solicited and captured relatively securely and digitally through reporting mechanisms such as digital forms tailored to particular situations of human rights violations, like those created by The Whistle, or through relatively secure, highly adopted messaging services, such as WhatsApp, Signal, and Telegram. As platforms such as Facebook, Twitter, Instagram, and YouTube encourage "intimate storytelling" and "voluntary self-disclosure,"<sup>16</sup> open source investigators may also discover civilian witness information through using deep searches on these platforms. Like Emily Hobhouse, open

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<sup>13</sup> Samuel Moyn, *The Last Utopia: Human Rights in History* (Belknap Press 2012).

<sup>14</sup> David Kennedy, 'International Human Rights Movement: Part of the Problem?' (2002) 15 *Harvard Human Rights Journal* 101; Günter Frankenberg, 'Human Rights and the Belief in a Just World' (2014) 12 *International Journal of Constitutional Law* 35.

<sup>15</sup> Guardian Research Department, '19 June 1901: The South African Concentration Camps' *The Guardian* (19 May 2011) <<https://www.theguardian.com/theguardian/from-the-archive-blog/2011/may/19/guardian190-south-africa-concentration-camps>> accessed 31 December 2018.

<sup>16</sup> Cristina Miguel, 'Visual Intimacy on Social Media: From Selfies to the Co-Construction of Intimacies Through Shared Pictures' (2016) 2 *Social Media + Society* 1.

source investigators draw on a multiplicity of data sources, and today have access to a plethora of new types of data and methods. Satellite imagery, for example, has advanced to an unprecedented extent, with remote-sensing satellites now able to capture images in up to 30 centimeters resolution, meaning that each image pixel captured by satellites is now representative of 30 square centimeters on the ground. This is enough to capture everything from infrastructure and missile sites down to troop units and vehicles. In another example, corporate information publicly available online enables researchers to analyze complex networks that may hide abusive practices such as modern slavery. Equally, data scraping techniques allow even the most inexperienced of investigators to download large chunks of data from across multiple sites in a matter of moments. Common to all of the new trends in technology-assisted investigations is that they make data from hard-to-reach places more readily available.

Because of the variety and scale of data involved, open source investigations often require collaborations among a diverse network of actors, another practice with a long tradition in human rights fact-finding. For decades, transnational advocacy networks incorporating human rights investigators – but also including journalists, church leaders, grassroots activists, and politicians – have worked together on the basis of shared values.<sup>17</sup> Given that a significant portion of the work of transnational advocacy networks is oriented around communicating between institutions and across geographic locations, the global architecture of the internet has further enabled the spread and effectiveness of their work. A variety of technologists, human rights practitioners, architects, academics, and activists are increasingly coming together to form networks and tools for supporting and improving evidentiary and advocacy techniques, as evident in projects produced, for example, by Forensic Architecture or Bellingcat. Private actors from the technology sector provide the platforms and tools for data collection, analysis, and output, either indirectly or directly, for the purposes of these investigations. Civilian analysts, crowds of amateurs who receive training in order to help with labor-intensive analysis tasks, are another new addition to open source investigation networks. For example, the Amnesty Decoders project on Raqqa relies on digital volunteers to look through past and current satellite imagery to track buildings over time in order to help identify periods and sites of airstrikes.

Amnesty International's DVC is a pertinent illustration not only of the use of open source investigation methods that have emerged across transnational networks, but also of the many layers of individuals who have to interpret and process relevant data into some form of knowledge about the particular event. A researcher in the vicinity of a human rights related event, for example, might be alerted to its occurrence by a witness, or on rare occasions, through personally witnessing the event. In some cases, the researcher is unable to either reach the area in question or to cover enough relevant ground to fully scope the event. Instead, she contacts Amnesty to request support from the Digital Verification Corps. Having been briefed on the often limited information known about the event, the Corps - which at the time of writing has a presence in the universities of Pretoria, Berkeley, Toronto, Essex, Hong Kong, and Cambridge - proceeds to put together a multidisciplinary team of investigators to conduct discovery surrounding said event. The discovery process includes deep searches on Twitter, Facebook, YouTube, and other media fora that may have portrayed the event within the given territory and timeframe. Investigators collect and

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<sup>17</sup> Margaret E Keck and Kathryn Sikkink, 'Transnational Advocacy Networks in International and Regional Politics' (1999) 51 *International Social Science Journal* 89.

archive these videos and images, and proceed, collaboratively (at times across campuses), to process the information using techniques such as reverse image searches to see if the content has appeared online previously; satellite imagery to scan for landmarks, signs, buildings, roads and landscapes to discover the geo-coordinates of the event; and weather data to corroborate time and place. Investigators might then look for further videos that portray the same event posted by different accounts or from different angles. The researchers ask, can we find additional pieces of media that corroborate what we initially discovered? Have investigators from other campuses found something different or reached different conclusions? Finally, in conversation with the DVC manager housed at Amnesty International, the Corps authors a report that establishes the probable veracity of the event and documents the verification process. The report is then either sent to the researcher on the ground to aid in further fact-finding and/or used by Amnesty International, in combination with its in-house researcher's observations, to write a press statement or advocate for some action by various stakeholders. Though it has roots in established traditions, human rights fact-finding in such instances is still a significant departure from human rights professionals using conventional methods; the new actors involved bring new understandings of knowledge, as we explore next.

### [New actors in human rights fact-finding and the struggle for interpretive authority](#)

Today, data about human rights has become increasingly accessible and is no longer solely the provenance of traditional human rights actors and experts. Advances in digital communication have provided various platforms for the collective development of new techniques to gather, contextualize, and verify data. These changes allow new actors unassociated with traditional human rights organizations, like technologists, volunteer digital verifiers, civilian witnesses, and even algorithms, to participate in the location, interpretation, verification, and promotion of human rights information and offer traditional actors new methods to apply to their work. Thus, both the "who" and the "how" of traditional expertise are shifting: Who, then, are human rights experts today, if human rights information is no longer restricted to experts with relatively exclusive access to sites of struggle? How is information properly contextualized and verified outside of traditional paradigms of known authorship and chains of custody - particularly when there's so much more information, and so much of it is anonymous or from unknown sources? Understanding the ways in which the "who" and the "how" of expertise are changing should ultimately lead us to the "why": Why is it that these experts who are using certain methods are endowed with authority, and what norms, values, and power dynamics does this authority uphold?

One of the consequences of a knowledge controversy is the questioning of traditional expertise and established authority figures.<sup>18</sup> A critical aspect of knowledge production, contested during a knowledge controversy, is *interpretive authority*: The authority to build information, which is inherently limited, into a coherent account or story and to ascribe it meaning. Location-specific experts, for example, provide context for and explain the significance of information that may not seem meaningful to the layperson or even other human rights professionals without relevant geographic and socio-political background knowledge of the event. With open-source investigations, data may be made available to all — a video posted on YouTube or images tweeted out, for example — but the

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<sup>18</sup> Whatmore (n 1); Barry (n 1).

interpretation of this information is often challenging. Even putting aside instances of malicious fakery, original posters of information may provide vague, misleading or no context in which to understand their posts; similarly, in advocacy, disparate instances must be tied into a bigger story that reflects their shared context. Multiple possible interpretations often exist when data is meagre, or when posters provide conflicting explanations of events. Therefore, this interpretative function is key in the transformation of human rights information into evidence for advocacy and court. It is up to experts to gather additional information to fill in the blanks or to verify or challenge existing explanations. Spaces for negotiation are crucial in this interpretative work, where stakeholders with different types of expertise and knowledge collaborate to produce truth-claims, persuading others of their views, contesting alternate framings, and acknowledging potential ambiguity in the interpretation.

Traditionally, interpretive authority has been the province of human rights professionals, who may visit or work in situ where human rights violations are taking place and develop networks of local informants; the information from these networks is then transformed into evidence by the human rights expert according to the accepted methods of her organization and her own expertise. This provenance is unsettled during the knowledge controversy by new actors who bring new understandings of interpretive authority, which we consider in turn below. Relatively new human actors in human rights investigations include civilians, who enter the sector either as spontaneous civilian witnesses who share their digital documentation of events around them, or as analysts tapped to deal with the deluge of digital data, as in Amnesty's Digital Decoders project or the DVC. Technologists are also newcomers, and they volunteer or are invited by traditional experts to assist with developing methods for analyzing and managing the deluge of digital data relevant to human rights research. In order to incorporate new civilian analysts, human rights professionals must teach them a relatively standardized, relatively straightforward set of methods. As a result, human rights professionals are collaborating with technologists in developing tools to assist both civilians and experts in verification and analysis, helping to clarify, systematize, and speed up the investigative process. As we return to below, increasingly-automated tools, because they can make information analysis decisions autonomously, can almost themselves be considered new actors with technologists acting behind them. In addition to being invited to collaborate directly with human rights groups, technologists are becoming increasingly powerful new actors in these investigations in their own right, as large private sector companies that deal in digital information must grapple with data about human rights abuses that appear on their platforms. For example, YouTube, Facebook and Twitter have all developed policies about how to treat content that violates the company's community standards but may provide important documentation of a human rights violation, and have created teams dedicated to investigating and addressing those violations. Startups from the technology-for-good sector seeking to address human rights aims have also proliferated.

Challenges around interpretive authority are inevitable when claims to authority depend on different backgrounds. Human rights professionals have authority based on their experience, proximity to witnesses, understanding of socio-political contexts, methodological expertise, and deep institutional knowledge, including familiarity with advocacy values and practices. In contrast, civilian witnesses have the authority of authenticity and deep cultural, social and historical knowledge. Technologists invent tools and have the necessary technical expertise to analyze larger bodies of data in new ways.

Given that it is unlikely that any one actor will have access to all types of expertise, these different experts must collaborate. During these collaborations, it may be difficult and to translate methods, implicit knowledge, and underlying systems of values across boundaries.

As mentioned above, civilian witnesses' use of digital technologies to document potential situations of human rights violations represents a welcome step-change in the amount of human rights information available. This information does not always translate so easily into evidence, however. In contrast with the scientifically-based, truth-claims epistemology central to dominant human rights institutions' fact-finding methodology – where things have to be exactly what they say they are, as proven through the triangulation of data and methods – civilian witnesses may bring differing understandings of interpretive authority to their notions of how to produce human rights knowledge. For example, a witness may share a report on social media but, lacking photographs of this particular event (or wary of posting images of victims), they may choose instead to post a proxy photograph of a similar event. For these witnesses, this epistemology of illustration facilitates a meaningful testimonial and truth telling that highlights their subjective experience: What happened was (a lot like) this. Human rights practitioners may believe this witness and want to support her; social media shares by human rights organizations can endow civilian witnesses with legitimacy, facilitate their visibility and, through that visibility, provide some protection against reprisals. At the same time, however, human rights practitioners are vulnerable to accusations of misinformation if they (re-)post or support testimonial that includes material, such as proxy images, that isn't consistent with a professional truth-claims epistemology. This can result in tension between would-be allies, as witnesses seek to uphold their report's legitimacy as authentic and original, and their interpretive authority in making reports in the way that is meaningful to them, despite the fact that it then cannot be situated within interpretive and epistemological norms of human rights organizations.

Excitement about the potential benefits of technologists engaging in human rights discovery and reporting processes has been well documented, and indeed it is difficult to imagine how human rights reporting in the age of digital communication can succeed without technical expertise. However, this expertise also comes laden with techno-culture norms that reframe interpretive authority, sometimes in ways that are misaligned with implicit goals and values of the human rights sector. For example, a tension exists between the techno-capitalist goal of efficiency and pluralist goals of negotiation and ambiguity.<sup>19</sup> Technologists working on behalf of human rights organizations to develop digital human rights reporting apps often advocate for the accumulation of a greater amount of data, specifically the kind of evidence that is easier to interpret using technical means (statistics; shorter stories with identifying details; certain types of photographs), despite the aforementioned dominant practice of long-form testimonials developed between witnesses and human rights practitioners.

This continued emphasis from technologists on more data that can be technically quantified (often with the idea that machine learning can separate the "good data" wheat from the "bad data" chaff – a tricky proposition when dealing with involved testimonials) offers a different interpretive paradigm and standard for fact-finding than in-depth testimonials informed by personal relationships and bolstered by the longevity of the area-knowledge of a human rights professional. This new paradigm, sometimes described

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<sup>19</sup> Luis Suarez-Villa, *Globalization and Technocapitalism: The Political Economy of Corporate Power and Technological Domination* by Luis Suarez-Villa (Routledge 2012).



pejoratively by practitioners as “quantity over quality,” represents an uncomfortable incursion of technologist conventions and values into this traditional human rights territory – even as some practitioners hope that it can provide information from sources that they might not receive otherwise.<sup>20</sup> A focus on data rather than narrative is also seen in the quantitative turn within human rights led by figures such as Patrick Ball, a statistician who analyzes large scale human rights abuses and to who has often provided expert testimony on war crimes. However, an emphasis on the quantitative creates new problems; per Sally Engle Merry, the “seduction” of quantitative data as able to provide concrete, seemingly objective truths often obscures the power relations and assumptions inherent in the development of quantitative systems of measurement.<sup>21</sup>

The latter is particularly of concern in the rise of machine learning and automated decision-making in human rights information analysis. Anxieties about digital tools in effect overstepping interpretive authority – that is, being used to achieve seemingly objective conclusions, that, nonetheless, are based on potentially flawed, biased or limited assumptions – suggests that these tools may be considered new actors in their own right, with varying degrees of interpretive authority. These new machine “actors” represent both processes and analytical “judgements.” For example, programs may analyze the shadows in an outdoor image to suggest the time of day and year; analyze the metadata attached to images and video; judge if social media posts contain human rights-relevant content using discovery algorithms; or suggest to civilian analysts working on a set of data which methods to try in what order. In this last instance, such programs suggest the use of methods both based on human judgement and machine judgement, with varying emphases. While the mechanized paradigm is not new, having clear antecedents in Fordian models of efficiency and mass production which similarly envisioned the human and machine working together as a mechanized unit, it is newly expressed in human rights within the context of advances in both machine judgement and instantly mediated digital communication. This interaction between old paradigms and new advances, in which new methods help us reflect on old structures, is typical of a knowledge controversy.

These machine actors are developed by human actors (technologists, sometimes working in collaboration with human rights professionals), and therefore inevitably reflect the biases and limits of their creators. However, a techno-romantic view of machines as omniscient – and machine judgement as transparent and uncontaminated by human bias – has often buried this authorship. Norms like the fetishization of empiricism (prizing the use of quantitative methods, outputs and formats regardless of their fit for the research question or context), concerns with objectivity, anxieties about the fallibility of experts in the context of the “post-truth” phenomenon, and the anticipation that institutions such as courts require data that is gathered, verified and framed in an empiricized way, have reinforced this perception that machine judgement is relatively pristine. Implicitly, this perception implies that human judgement is comparatively contaminated. This assumption and the resulting obfuscation of potential biases in machine judgement already has consequences for vulnerable people, as Rebecca Wexler reveals in her work on the use of algorithms to inform legal judgement within the criminal justice system, and Virginia

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<sup>20</sup> Isabel Guenette Thornton, Ella McPherson and Matthew Mahmoudi, ‘No Tech, Low Tech, Slow Tech: Human Rights Practitioners’ Resistance to ICT4D’ [Forthcoming] *International Journal of Human Rights*.

<sup>21</sup> Sally Engle Merry, *The Seductions of Quantification: Measuring Human Rights, Gender Violence and Sex Trafficking* (The University of Chicago Press 2016).

Eubanks discusses in the context of the flawed algorithmic indicators that are used to separate children from impoverished parents in Allegheny County, Pennsylvania.<sup>22</sup>

Each interpretive paradigm or epistemology views the balance of authority in truth-claims differently – whether, for example, authority should reside in statistical analysis, big data patterns, qualitative accounts by experts, or testimonies direct from witnesses. As new actors bring different paradigms and epistemologies of interpretive authority, this diversity of perspectives increases the risk of errors from actors who might misunderstand information produced across boundaries. This may occur, for example, as a result of uncritically replicating information that is seemingly direct from witnesses or is the automatic product of analytical tools produced without an informed consideration of context. Actors may repost material that has not been properly verified, perhaps because the tweet in question has already been taken up widely by the press or other social media users, exacerbated by fast-moving visibility methods like hashtag activism. Actors may reproduce statistics based on definitions or categories that they would not agree with were those categories made transparent. They may mishandle the chain of custody when gathering information, particularly digital information, such that the data is no longer admissible in courts. With machine processes, analysis is limited by the tools and methods offered, which may falsely suggest that a series of positive results on each test is enough to produce confidence, when tests may have varying relevance to the questions at hand.<sup>23</sup> This can be contrasted with traditional human-centered processes that emphasize the understanding that methods must remain flexible, and sometimes be created anew, to be an appropriate fit for the context.

Furthermore, new civilian witness and technologist actors may underestimate the scope of interpretive work within analysis and verification and, indeed, may be skeptical of seemingly intuitive processes, used by experienced human rights practitioners, that they are unable to easily replicate or understand. Human rights professionals construct, in the words of Stephen Hopgood, "an appearance of objectivity out of subjectivity" to define what constitutes a human rights violation – which, per Richard Wilson, requires "a suppression of the authorial voice and the deployment of a language purged of all tropes, metaphors, and figurative elements," as a way to empiricize and simplify complex interpretive processes.<sup>24</sup> The underlying interpretive work – such as resolving the question of how to deal with ambiguous or incomplete data, inferring broader meanings of social and political movements from individual stories, categorizing complex experiences, and attempting to convey suffering – is thus easily obscured and devalued. The inherent uncertainty of such interpretive work, which exists for all methods, may be further obfuscated by the use of digital analysis tools that seem to give an empirical result. In the next chapter section, we go on to consider the implications of the rise of these new actors, with their contested understandings of interpretive authority, on the core human rights norm of pluralism.

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<sup>22</sup> Rebecca Wexler, 'Life, Liberty, and Trade Secrets: Intellectual Property in the Criminal Justice System' (2018) 70 *Stanford Law Review* 1343; Virginia Eubanks, *Automating Inequality: How High-Tech Tools Profile, Police, and Punish the Poor* (St Martin's Press 2017).

<sup>23</sup> Orentlicher (n 3).

<sup>24</sup> Stephen Hopgood, *Keepers of the Flame: Understanding Amnesty International* (Cornell University Press 2006) 5; Richard A Wilson, 'Representing Human Rights Violations: Social Contexts and Subjectivities' in Richard A Wilson (ed), *Human Rights, Culture & Context: Anthropological Perspectives* (Pluto Press 1997) 149, cited in Hopgood (2006) 5.

## The knowledge controversy around open source human rights investigations and its implications for pluralism

Knowledge controversies are unsettling, but this very state of unsettlement is productive in terms of analyzing power relations and working to make them more equal.<sup>25</sup> The appearance of a knowledge controversy marks the shattering of prior consensus about a topic of knowledge and the methods for creating that knowledge – a consensus that naturalizes the knowledge and makes it seem as if it just *is* rather than *is constructed* by social actors.<sup>26</sup> The clash of actors, methods, data, and norms in a knowledge controversy creates an opportunity to be reflexive about the current practices of knowledge production and how they came about – as well as what we think knowledge production should be. Part of the latter involves identifying the norms that we value in knowledge production, and assessing how directions in the knowledge controversy measure up to those norms. This may be an uncomfortable process, as it requires us to momentarily step away from our stake in the knowledge controversy, about which we may feel passionately, in part because it is wrapped up in our own power positioning.

The norm of knowledge production that concerns us here is one that is central to our academic disciplines as well as to our work on The Whistle, an academic start-up focused on supporting the reporting and verification of digital human rights information. It is also a core norm for human rights fact-finding, given this practice's concern with speaking truth to power and giving voice to the voiceless. The norm in question is pluralism, which, as mentioned above, is the variety and volume of voices that can speak and be heard, both in terms of shaping the practices of human rights fact-finding, and in terms of access to human rights mechanisms that help subjects and witnesses speak truth to power. Pluralism of knowledge production is supported in at least two ways: the creation and maintenance of spaces for opportunity and the creation and maintenance of spaces for negotiation. *Spaces for opportunity* provide chances to participate in knowledge production. *Spaces for negotiation* provide chances to negotiate that participation into the ultimate decision of what knowledge is produced, how, by whom, and why. This distinction is important, as it tells us something about not only the quantity of pluralism (spaces for opportunity), but also its quality (spaces for negotiation). It has parallels to a long-standing debate in development and citizenship studies and practices around what exactly participation should look like, with greater quality of participation seen as having greater benefits in terms of equalizing power relations.<sup>27</sup>

Our overview of the settled practices of human rights fact-finding disrupted by the current knowledge controversy indicates that these settled practices provided spaces for opportunity and spaces for negotiation, albeit limited. Human rights practitioners have long included civilian witness accounts, translating them into the standardized reports necessary for influence at the international, institutional level. The traditional, orthodox practice of face-to-face interviews allows not only spaces for opportunity for civilian witnesses to

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<sup>25</sup> Sarah Franklin, *Biological Relatives: IVF, Stem Cells, and the Future of Kinship* (Duke University Press 2013); Sarah Harding, 'Feminism, Science, and the Anti-Enlightenment Critiques' in Linda J Nicholson (ed), *Feminism/Postmodernism* (1990).

<sup>26</sup> Barry (n 1); Brian Martin and Evelleen Richards, 'Scientific Knowledge, Controversy, and Public Decision-Making' in Sheila Jasanoff and others (eds), *Handbook of Science and Technology Studies* (Sage 1995); Whatmore (n 1).

<sup>27</sup> Sherry R Arnstein, 'A Ladder of Citizen Participation' (1969) 35 *Journal of the American Planning Association* 216.

convey their knowledge to fact-finders, but also spaces for negotiation, as this knowledge transfer happens through a conversation that allows its participants explain their respective versions of interpretive authority and their respective epistemologies so as to arrive at a mutual understanding of the events under discussion. For example, a civilian witness who remembers the violation largely through the emotional as well as physical trauma they experienced may meet a fact-finder who is interested in an account that emphasizes specific facts, such as the place, date, and time of the violation. In cases like this, the interlocutors can, through negotiation, build bridges between differing visions of what human rights knowledge is and how to construct it. In particular, through listening to the civilian witness, the fact-finder can honor her account while also translating it for consumption by human rights institutions and possible use as evidence admissible in court.<sup>28</sup>

The resource-intensive method of face-to-face interviews has, however, always meant a limit on spaces for opportunity for witnesses. These limits stem not only from the cap on the number of civilian witnesses who can cross paths with fact-finders during their research, but also from methodological limitations: Those who have experienced violations that are less documentable using the traditional methodology of shaming based on witness testimonies (for example, violations without survivors or violations involving social, economic, and cultural rights) have generally had greater difficulty in accessing the machinery of human rights process.<sup>29</sup> At the broader scale of institutional politics, we see limitations on spaces for negotiation arising from the power dynamics among the different sets of actors involved. Though civilian witnesses and collaborative networks are important to developing human rights information into evidence, orthodox human rights institutions – because of their resources, their credibility, and their proximity to the corridors of power – usually have the dominant interpretive authority. This power imbalance ultimately circumscribes the potential space for negotiation in the production of human rights knowledge. It is also a historical precedent that is illuminatory for the dynamics of the current knowledge controversy.

First of all, despite predictions that information and communication technologies would allow the pursuit of accountability to be conducted extra-institutionally through peer networks of citizens, societies show no signs yet of entering a post-institution age. The multi-layered human rights architecture that is advocated by bodies and agencies of the United Nations (UN) is still very much at the center of how human rights practice is executed in the international context. There are, for instance, still significant constraints to what can be considered a legitimate method for evidence capture, with a preference for established sources with whom institutions have built trust – a fact that is in tension with the adoption of open source methods, a prime feature of which is a greater diversity of voices (the majority of whom will not have the credibility of long-term sources and informants). International NGOs, and the UN bodies in particular, are here to stay and have a great degree of state-power behind them in shaping dominant epistemologies and norms; traditional ways of "doing" human rights have, in other words, become somewhat cemented at this level. This makes it difficult to truly open up space for negotiation on human rights methodologies. Participants in open source investigations are thus potentially subject to a dilemma vis-à-vis human rights pluralism. On the one hand, they

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<sup>28</sup> Ella McPherson, 'Technologies for Human Rights Witnessing: Humans, Machines and Ethics' (Working Paper).

<sup>29</sup> Kenneth Roth, 'Defending Economic, Social and Cultural Rights: Practical Issues Faced by an International Human Rights Organization' (2004) 26 Human Rights Quarterly 63.

must plug in to the existing institutional framework to be effective in delivering citizens access to the mechanisms of human rights accountability; on the other hand, to do so, they may not have the space to negotiate alternative interpretive frameworks and norms into the production of human rights knowledge, but rather have to shoehorn this diversity into the standardized, dominant methods of these institutions.

Secondly, these institutional dynamics have set a precedent for how struggles over spaces for opportunity and spaces for negotiation might play out. Human rights professionals are well aware of power dynamics, including the inequalities around pluralism, involved in orthodox human rights practices;<sup>30</sup> this explains some of the excitement that has emerged about the spaces for opportunity afforded by new communication technologies.<sup>31</sup> These technologies have been invaluable for the spontaneous civilian witness who, upon experiencing a human rights atrocity or crime, can take to any number of platforms to seek uptake of their information among publics and professionals – a particularly attractive (if risky) possibility in the absence of a domestic rule of law system to which victims can appeal for remedy. Though inaccessible in some parts of the world (e.g. due to cost or authoritarian censorship) or differentially accessible within a community (e.g. due to gender or age norms around technology ownership), a camera and access to the internet would seem enough to shed light on an unseen event, regardless of geographic context or the nature of the atrocity.<sup>32</sup> It is not, however, just digital divide issues in terms of access – which can map onto traditional issues of fact-finder access to dangerous or remote regions – that limit potential new spaces for opportunity. Divides in terms of technical and information literacy are a concern as well.<sup>33</sup> Abuses that are easier to capture and corroborate visually, such as those occurring in public places, may be more easily identified and analyzed than harms like sexual violence, which are more likely to happen in private and are difficult to document with current tools like smartphones. In another limitation to spaces for opportunity, human rights organizations' long-standing central concern with credibility means this is still a metric by which potential civilian witnesses are assessed; exclusionary power dynamics persist around this, where greater credibility can be associated with greater social capital, such as the number and type of followers.<sup>34</sup> Algorithmic privilege, namely a user's relatively prominent positioning in other users' social media timelines due to the opaque workings of timeline algorithms, and content moderation, or the removal of user content from social media platforms due to its perceived violation of community standards, are other ways in which new spaces for opportunity are limited.

Still, it seems spaces for opportunity are growing with new technologies not only in terms of civilian witness information but also in terms of the evaluation of that information for evidence. New networks are coming together across diverse professions to improve digital analysis techniques, including through the development of new opportunities for

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<sup>30</sup> Alston and Knuckey (n 5).

<sup>31</sup> Molly Land, 'Democratizing Human Rights Fact-Finding' in Philip Alston and Sarah Knuckey (eds), *The Transformation of Human Rights Fact-Finding* (Oxford University Press 2016).

<sup>32</sup> Christoph Koettl, 'Citizen Media Research and Verification: An Analytical Framework for Human Rights Practitioners' (University of Cambridge Centre of Governance and Human Rights 2016).

<sup>33</sup> Ella McPherson, 'Digital Human Rights Reporting by Civilian Witnesses: Surmounting the Verification Barrier' in Rebecca Ann Lind (ed), *Producing Theory in a Digital World 2.0: The Intersection of Audiences and Production in Contemporary Theory*, vol 2 (Peter Lang Publishing 2015).

<sup>34</sup> Ella McPherson, 'Advocacy Organizations' Evaluation of Social Media Information for NGO Journalism: The Evidence and Engagement Models' (2015) 59 *American Behavioral Scientist* 124.

civilian analysts. In these scenarios, expertise is established through using accepted, rigorous (and often reproducible) methods: this is akin to what Diane Orentlicher calls “accountability-through-methodology” rather than the authority of experts as such.<sup>35</sup> Put another way, the “how” of human rights investigations leads to the “who” and the “why” of accepted expertise, instead of the other way around. While a focus on methods — particularly reproducible and empiricized methods that can, in theory, be deployed by anyone to verify or challenge human rights stories — can be seen on the one hand as creating new spaces for opportunity, it can be seen on the other as undermining the value of other forms of human judgement, and thereby reducing pluralizing spaces for negotiation and ambiguity.

A focus on methods in the current knowledge controversy means a focus on technologies, and these technologies and their associated technologists bring new norms of knowledge construction into the mix – or their increasing prominence makes their associated norms more dominant. A significant proportion of the new actors and methods introduced with open source investigations hail from the technology sector. Think, for example, of the use of Facebook, Twitter and WhatsApp as human rights information transmission mediums, or of the development of human rights-specific applications by programmers. The programmers building these technologies, whether mainstream or working in a human rights niche, typically receive their formative training in a cultural context increasingly shaped by Silicon Valley values. A cornerstone of these values is the norm of efficiency, with associated knowledge values of quantification and objectivity that allow for more efficient analysis. Prizing efficiency means prizing the ability to do the same with less resources or to do more with the same amount of resources. The latter is especially important in the informational sector, given the oft-cited statistic that 90 percent of the world’s data was produced in the past two years.<sup>36</sup> In other words, prizing efficiency prioritizes a technology solution to a technology problem – that of big data.

Like every other information-based profession, the human rights sector faces a big data problem. Often, open source investigations involve the discovery of a vast amount of data, much more than was previously possible, which is both the exciting and challenging potential of these new forms of information collection – particularly given the time and expertise needed to verify new forms of digital data.<sup>37</sup> Given the hours involved, the interest among many actors in the human rights world and beyond in the development and adoption of new technologies for making the collection and analysis of this data more efficient is understandable. This emphasis on efficiency, however, not only squeezes out space for negotiation but also may make negotiation a less desirable norm of knowledge production.

Knowledge production achieved through spaces for negotiation flourishes within human relationships, over time, with effort and exchange – elements at odds with the norm of efficiency. The efficiency of technologies often derives from their replacement of human endeavour with machine work, which often reduces time constraints in part through

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<sup>35</sup> (n 3) 509.

<sup>36</sup> Bernard Marr, ‘How Much Data Do We Create Every Day? The Mind-Blowing Stats Everyone Should Read’ (*Forbes*, 21 May 2018) <<https://www.forbes.com/sites/bernardmarr/2018/05/21/how-much-data-do-we-create-every-day-the-mind-blowing-stats-everyone-should-read/>> accessed 3 September 2018.

<sup>37</sup> McPherson, ‘Digital Human Rights Reporting by Civilian Witnesses: Surmounting the Verification Barrier’ (n 32).

eliminating interpersonal contact.<sup>38</sup> Think, for example, of a civilian witness reporting a human rights violation through a web-based form rather than face-to-face with a fact-finder. A different instance is the rise of satellite imagery to document human rights violations. This has created new opportunities for inclusion in human rights cases, but such a data source places a great distance between those affected on the ground and the human rights fact-finders picking up their cases. In another example, ICTs allow the Digital Verification Corps to work collaboratively across time and place, yet this separation does not always lend itself well to in-depth conversation. Negotiation is a human-to-human process; it is difficult to negotiate with a machine – despite advances in artificial intelligence – or even sometimes to negotiate with another human through a machine.

If the rise of technologists and their tools in this knowledge controversy casts doubt on human judgement and non-mechanized processes (as contaminated, and also as inefficient compared to machine processes), this introduces consequences for interpretive authority. Human actors may increasingly be encouraged to act as consistent and efficient machines through following protocols that resemble algorithms, while machines are allowed to act as humans by making evaluative suggestions or even decisions about information.<sup>39</sup> In terms of the former, programs supporting civilian analysts to assist with verification often provide a series of methods and tools following an 'if-then' structured series of tasks – an algorithmic paradigm. Examples of the latter include programs in computer vision, where machines automatically identify objects in pictures, or algorithmic identification engines, where machines make judgements about what material might be valuable in human rights investigations such as through identification of key words.<sup>40</sup> The interpretive authority of machine processes is ascendant; human actors' space for negotiation is compressed by the new pseudo-mechanized processes involved in human rights fact-finding as well as by algorithms' invisibilization of interpretive moments and bias that otherwise might be identified and interrogated. Even if unintentional, this obfuscation of the falsity of machine processes' implied certainty is always political, as removing space for ambiguity and negotiation removes interpretive agency and connotes that only a single epistemology is valid. As a result, the norm of negotiation in knowledge production is depreciated.

The reduced spaces for negotiation resulting from the rise of technology tools and norms has a further consequence of introducing new inequalities and exacerbating existing ones. In other words, some actors have access to more space than others. For example, regarding negotiation around the shape and transparency of tool design, the elite populations working at Western NGOs are more likely to have connections to technologists than those in the Global South.<sup>41</sup> This inequality maps onto the existing dominance of the West over the South in terms of the direction of human rights knowledge.<sup>42</sup> It also means that the design priorities in technology for human rights will more likely come from Western perceptions that may or may not fit with Southern realities – again, a wider, long-standing

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<sup>38</sup> McPherson, 'Technologies for Human Rights Witnessing: Humans, Machines and Ethics' (n 27).

<sup>39</sup> *ibid.*

<sup>40</sup> Jay D Aronson, 'Computer Vision and Machine Learning for Human Rights Video Analysis: Case Studies, Possibilities, Concerns, and Limitations' (2018) 43 *Law & Social Inquiry* 1188; Alan Blackwell and others, 'Computer Says "Don't Know" - Interacting Visually with Incomplete AI Models' (2018) <<https://digital.lib.washington.edu/researchworks/bitstream/handle/1773/42857/DTSHP18-Proceedings-final%20v2.pdf?sequence=8&isAllowed=y>> accessed 2 January 2019.

<sup>41</sup> Alston and Knuckey (n 5).

<sup>42</sup> Okafor (n 7).

problematic for human rights ideas and methods.<sup>43</sup> In another example, while actors external to the dominant human rights institutions may have increasing opportunities for their information to be seen by these institutions, they may have less space to negotiate the interpretation of this information, as this visibility occurs mediated by machines rather than by humans. The consequence is that, as under the established practice of human rights fact-finding, information might come from the "bottom," but, as Dustin Sharp puts it, 'Solutions generally come from the "top."<sup>44</sup> In sum, the rise of open source human rights investigations may mean that, though we see more actors engaged in human rights knowledge production, we hear them less.

## Conclusion

In this chapter, and in the spirit of the knowledge controversy approach, we have raised more questions than answers and more possibilities than conclusions about the changes wrought by and around the rise of open source human rights investigation.<sup>45</sup> We pose these questions in the aim of creating spaces for reflection among practitioners and scholars, rather than state answers that might shut out alternative perspectives. As we have explained, human rights fact-finding is in the midst of a knowledge controversy spurred by the rise of new technologies and manifesting in expanding practices, like open source investigation, involving new actors, who bring new norms. Knowledge controversies are marked by a departure from the taken-for-granted, established order, which in turn provides insight into the normative, practical, and power-related dimensions of the previous status quo. They feature potential misalignments in norms and epistemologies between actors, and contested expectations around methodological practices – conflicts visible in public and professional anxieties about changing paradigms of expertise, interpretive authority and power in the production of human rights knowledge. We have focused here on the implications of this knowledge controversy and its contests for the pluralism of human rights knowledge production. We go beyond concerns with the quantity of pluralism, associated with spaces for opportunity for participation, to the underexamined quality of pluralism manifested in spaces for negotiation over the methodologies used to establish the knowledge, and the associated interpretive authority necessary to do so. This more nuanced understanding of pluralism ensures that we push analytically far beyond the mistaken assumption that the wider availability of technologies for human rights is in and of itself considered a measure of greater pluralism.<sup>46</sup>

Open source human rights investigation surfaced in a field dominated by institutional players, but also featuring looser networks, including civilian witnesses. This new practice is an evolution of the latter, but must also fit into the orthodox institutional framework to produce evidence that will be taken seriously by these still-dominant mechanisms of accountability and justice. As such, despite the significant new, exciting capacities and expanded spaces for opportunity for new actors to participate in the human rights knowledge production that new technologies have afforded, these are arriving in a context where the precedent has been to provide a narrower space for negotiation over the

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<sup>43</sup> Sharp (n 3).

<sup>44</sup> *ibid* 76.

<sup>45</sup> Whatmore (n 1).

<sup>46</sup> Tamy Guberek and Romesh Silva, 'Human Rights and Technology: Mapping the Landscape to Support Grantmaking' (Partners for Human Rights Information, Methodology and Analysis 2014) <<https://www.fordfoundation.org/media/2541/prima-hr-tech-report.pdf>> accessed 3 January 2018.



interpretation of that knowledge. This precedent has dovetailed with a troubling trend, which is that spaces for negotiation may be narrowing in the relatively new practice of open source investigation as well. Norms that have arrived with new technologist and technology actors – such as efficiency, quantification, and objectivity – can clash with the norm of negotiation. Not only are new, efficiency-oriented practices edging out spaces for negotiation, including reflection on information interpretation, but they are also depreciating negotiation as a norm of knowledge production – despite its benefits for pluralism.

At the time of writing, we are still in the midst of the knowledge controversy in human rights fact-finding. It remains to be seen how competitions and collaborations will develop. Will heterogeneous norms, goals, and methods resolve over time, leading to flexible, hybrid practices? Will they solidify into rigid practices dominated by particular actors? Or will they continue to provoke anxieties and struggles around contested interpretive authority?

Along with the anxieties of knowledge controversies come the benefits of the openness they create. This openness, however, is short-lived. It only lasts as long as the knowledge controversy. The actors involved often rush to settle the controversies that arise because norms and practices of knowledge production are unstable and evolving, and work based on these norms and practices can be discomfiting, slow and difficult to complete. Returning to a taken-for-granted and standardized state allows us to work more efficiently, but it comes at the expense of a critical awareness of why and how we are producing knowledge that would otherwise allow us to question and adjust our norms and practices. Just as the opening of a knowledge controversy is an important moment for the state of knowledge production, so is its closure. This is the moment when knowledge and methods settle and become widely accepted anew. One version in the controversy has won. Its proponents have earned the power to define how knowledge is produced and how much space for opportunity and for negotiation is built into the system.<sup>47</sup>

As a result, we encourage participants not to rush to resolve the current knowledge controversy, but rather to dwell in the openness it creates.<sup>48</sup> This is the moment to reflect on existing and desired norms and practices of knowledge production, to retain or change them, and to evaluate new norms and practices against them. It is a time to ensure that flexibility exists to tailor the traditional and the new to best fit each fact-finding situation. It is now that participants should continue to build on the reflexive turn in human rights fact-finding to think not only about implications of changes for spaces for opportunity and negotiation and how to protect and grow these spaces, but also about relative inequalities of access to these spaces among different populations. Questioning along the way, even as you read this book, *how* interpretive authority and expertise are developed through norms, practices and methods, *why* these methods are emphasized over others, and *who* are empowered as experts as a result will draw attention to the power dynamics and potential inequalities inherent in this knowledge controversy.

The idea of a knowledge controversy may be at once familiar and unsettling for human rights practitioners. Given the contested nature of human rights reports, controversy is the murky air practitioners breathe. That said, human rights professionals are usually trying to clear the air, to settle the dust and allow the facts to emerge. Where they

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<sup>47</sup> Martin and Richards (n 25).

<sup>48</sup> Whatmore (n 1).

see violations, they employ methods to make their evidence as incontrovertible as possible. Part of this process entails the meta-method of publicly communicating the rigor of their methods in their reports and on their websites. So while human rights practitioners might be comfortable with controversies on the level of evidence about what happened in specific instances of human rights violations, more disconcerting is a knowledge controversy in how we arrive at human rights evidence overall. Still, even though practitioners may breathe a sigh of relief when this technologically-afforded knowledge controversy closes and methods naturalize again, we urge them to retain some of its openness in their production of knowledge.

Settling a knowledge controversy prematurely not only risks sedimenting power dynamics *within* human rights investigations, it may also pose risks *to* human rights investigations as nefarious actors may co-opt new tools, methods and forms of interpretive authority in ways contrary to pluralism. We are reminded by the increase of digital fakery scandals that the positive developments leveraging digital technologies for open source investigations may also be overshadowed and further complicated by new techniques adopted by nefarious state and non-state actors, and developed against the backdrop of leaps in artificial intelligence and machine learning. Though digital verifiers such as the Atlantic Council's Digital Forensic Research Lab and Bellingcat have fairly settled techniques for exposing disinformation and digital fakery, deep fakes – digital scenarios, including the video and audio-based imitation of individuals, generated via artificial intelligence – pose perhaps one of the greatest information challenges on our horizon, as Scott Edwards describes in chapter X of this book. Furthermore, as open source investigation develops against the backdrop of the fake news era, it has become ever more common for opponents to attempt to discredit human rights fact-finders' methods and findings, and such discrediting discourses may take hold among broader publics. The socio-technical changes introduced in information-sharing in the late digital age must therefore be approached with caution; there is much to be excited about in open source investigations and human rights, but also reason to tread carefully to avoid falling into noxious challenges to human rights documentation. With spontaneous witnesses of human rights-related incidents already considered suspect by their lack of established credentials, aforementioned developments risk further jeopardizing marginalized voices.

As the risks for human rights investigations are so high, open source human rights investigation is, in a sense, the canary in the new information coalmine. The perspective of human rights practitioners is incredibly valuable for other knowledge professions such as journalism and academia, as, being at the frontier, they can provide thought leadership in terms of how to navigate this terrain as equitably and inclusively as possible. This can be showcased in an ethical approach to open source investigation that supports spaces for opportunity and negotiation – thinking all the while about how to settle the knowledge controversy with the utmost consideration of pluralism and power relations, while also retaining its spirit of reflexivity and flexibility.

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