the
Humanitarian Leader

Humanitarian practice fit for the digital age

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THE HUMANITARIAN LEADER:
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Abstract

This essay seeks to examine some of the implications of advanced digital technologies on the humanitarian sector. It first situates data and technology-driven transformations in the broader context of humanitarian innovation and reform. It outlines how the increasing scale and complexity of humanitarian needs and operating environments has led to experimentation with new tools and approaches, business models and organisational roles in the sector. These innovations are occurring against the background of the localisation agenda, competition from the private sector, collapsing trust in institutions, and increased scrutiny of charities. The essay then highlights how technologies such as artificial intelligence and machine learning, biometrics, and blockchain are increasing the capacity of the sector to improve humanitarian outcomes for people in crisis through new functionalities and services, greater insights into emerging vulnerabilities and risks, and enhanced organisational performance. Conversely, the essay then explores how these tools and systems are introducing a host of potential harms by exposing vulnerable people and communities to new forms of intrusion, insecurity, and inequality. This includes issues of data protection, cyber security, inherent biases in technological tools, and the reality of the digital divide and exclusion. Lastly, the essay outlines an emerging critical research agenda and active policy debates about responsible, ethical and inclusive design, use and regulation of technology in humanitarian contexts.

Leadership relevance

The paper canvasses how humanitarian practice is evolving in response to digital and automating technologies in the sector, set against the backdrop of the wider humanitarian reform agenda. There is an emerging body of scholarly literature on the uses of emerging technologies in the humanitarian sector, offering some understanding of the history, extent and impact on humanitarian organisations and affected populations. The essay briefly introduces some of the key literature on the topics of re-imagined humanitarianism, examples of the current uses of data and technology in the sector, and an emergent critical agenda in humanitarian research and practice towards responsible, inclusive, and ethical technology design. The paper reflects on the questions of how the humanitarian ecosystem needs to adapt so that it is can shift power, promote accountability, enable innovation and, vitally, keep people safe.

Background

In Australia and globally, humanitarian organisations are struggling to address increasingly complex needs. The issues are interconnected: more frequent and intense disasters, growing burden of ill-health, rising inequality, political instability, and protracted conflicts are buffeted by cross-cutting pressures of climate change, changing demographics, and urbanisation (DevInit, 2020; IFRC, 2020). While the humanitarian system supports more people than ever, it often falls short of achieving the best humanitarian outcomes for people in crisis (Bennett & Foley, 2016).

The operational challenges in the humanitarian sector are multidimensional. The finance gap limits the ability of the sector to respond to growing needs (DevInit, 2020). The sector is fragmented, characterised by isolated operations, multi-layered decision-making, and institutional and geographic barriers (Bisri, 2016; WEF, 2017). The role and relevance of international humanitarian organisations is being challenged by the private sector and the localisation agenda (Ayobi et al, 2017; WEF, 2019). This is occurring at the time of collapsing trust in institutions, including non-government organisations (NGOs) (Edelman, 2020), and the increased scrutiny and compliance requirements placed on charities (Cortis et al, 2014; Seibert, 2017).

How does the humanitarian ecosystem need to adapt so that it is can shift power, promote accountability, enable innovation and, vitally, keep people safe?

Building on a decade of reform, the World Humanitarian Summit in 2016 formalised a commitment to localisation of aid, with the central tenet of transferring more funding and control from international to local humanitarian organisations (Ayobi et al, 2017). Recently, the disclosures of racism in the sector (Parker, 2020), occurring in the context of the Black Lives Matters movement, have re-kindled the calls for decolonisation of aid (Currion, 2020; TNH, 2020). These debates have accelerated during the global COVID-19 pandemic, as international humanitarian organisations repatriated their staff, and movement restrictions in many places challenged the delivery of international aid (Aly, 2020).

Growing humanitarian needs, more complex operating environments, and an ambitious reform agenda, occurring at the time when traditional sources of humanitarian support and funding are diminishing, raise the question of how humanitarian organisations can work better to address these challenges. How does the humanitarian ecosystem need to adapt so that it is can shift power, promote accountability, enable innovation and, vitally, keep people safe?

In response to these questions, the sector has been experimenting with new tools, approaches, and business models (see for example IFRC, 2020). Organisations are implementing collective impact, shared value, and impact investment models in order to diversify funding and deliver sustainable impact (Kuo, 2020; Porter & Kramer, 2011; Smart, 2017). They are trialling different approaches to governance and operations (such as the 2019 restructure of Australian Red Cross' international programs towards better funded local governance) and they are increasingly incorporating emerging technologies, such as blockhain, biometrics, and data science and analytics, into their programs and services (Bernholz et al, 2018; Sandvik, 2017).

In fact, emerging technologies have fast become critical tools for humanitarian work (IFRC, 2019). Using satellite images, drone footage, and crowd-sourced mapping and verification, data science is strengthening early warning systems and improving response efforts to disasters. Data analytics are helping filter and classify social media messages related to humanitarian crises in real time, giving responders on the ground critical information on what is happening in affected communities. Data modelling is helping predict the spread of infectious diseases and map out community vulnerabilities to better prepare for disasters. Biometrics are being used to streamline and speed up registration processes in an effort to allow faster access to aid for people in need. As examples of these activities, see 510.global's data science work[1] (including drones, databases and distributed ledger technologies), Microsoft's AI for Humanitarian Action initiative[2], the Artificial Intelligence for Disaster Response[3] platform used to filter and classify social media messages related to emergencies, disasters, and humanitarian crises, and the UN refugee agency's (UNHCR) Biometric Identity Management System[4]. Blockchain—with its potential to increase trust, transparency and traceability to almost any asset that can be uniquely identified (Casey & Vigna, 2018)—is expanding rapidly with multiple actors in the humanitarian sector developing tools and collaborations for identity, finance, fundraising, and provenance (such as Australian Red Cross' digital identity project[5], and Oxfam's work on delivery of cash programming in the Pacific[6]). Beyond the focus on enhancing frontline responses, organisations are using data science and

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[1] See https://www.510.global/what-we-do-3/.

[2] See https://www.microsoft.com/en-us/ai/ai-for-humanitarian-action

[3] See http://aidr.qcri.org/

[4] See https://www.unhcr.org/protection/basic/550c304c9/biometric-identity-management-system.html

[5] See https://www.industry.gov.au/data-and-publications/national-blockchain-roadmap/sectoral-opportunities

[6] See https://www.oxfam.org/en/unblocked-cash-project-using-blockchain-technology-revolutionize-humanitarian-aid

'intelligent' applications to gain insights into operational gaps and inefficiencies, allowing them to improve engagement with communities and supporters, and enable a more nuanced and efficient service delivery (see, for example, Australian Red Cross' data science and analytics team[7] in their marketing department).

Digital transformation doesn't just change how humanitarians do their work; it challenges the fundamental principles of humanitarianism—and especially the principle of 'do no harm'—by introducing new risks into humanitarian operations (ICRC & Privacy International, 2018). While data and technology can enable humanitarians to do their work cheaper, faster and with more precision, enhancing the ability to deploy the right kind of aid at the right time to where it is needed most, these tools and systems can also introduce a host of potential harms by exposing already vulnerable people and communities to new forms of intrusion, insecurity and inequality (Jacobsen, 2015; Sandvik et al, 2017; Young & Jurko, 2020). Some of these harms include breaching privacy obligations by collecting personally identifiable and sensitive information, ethical issues caused by testing poorly understood technologies on people, possibly without their consent, and not considering the needs of populations in often poorly regulated contexts. Given the complexities and uncertainties involved, there is a need to interrogate and test the implications of using emerging technologies in humanitarian settings.

Reimagining humanitarianism: decentralised and local

Despite attempts to improve cooperation and coordination over the years, the humanitarian system remains commonly characterised by isolated operations and centralised structures to the detriment of its collective mission. There is a growing understanding that the current system is no longer fit for purpose, unable to meet existing needs, let alone be ready for the future (Bennett et al, 2018; Bennett & Foley, 2016; IARAN, 2017; IFRC, 2020).

The concept of decentralisation as a way to reform the system gained prominence in the humanitarian sector over several decades (Ayobi et al, 2017; Fowler, 1992). It refers to the shift of administrative responsibility, resources, and decision-making authority from the central headquarters to areas where programs and services are delivered (Ayobi et al, 2017; IARAN, 2017). The approach, now commonly referred to as localisation, gained momentum following the adoption of the 'Grand Bargain' at the 2016 World Humanitarian Summit in Istanbul, where international donors committed to

more flexible, predictable, and longer term funding while compelling the humanitarian actors to improve the efficiency and effectiveness of aid (Ayobi et al, 2017; IASC & UN OCHA, 2020). Potential advantages of decentralised systems may include better targeted responses, improved policy formulation, enhanced coordination, and less bureaucracy than centralised structures (Fowler, 1992).

The key demands that the Grand Bargain places on humanitarian organisations are that they better coordinate their actions and reduce duplication. An important focus was placed on providing more support and funding tools for national (local) agencies; in other words, decentralising resources for better humanitarian action (IASC & UN OCHA, 2020). In addition, humanitarian organisations committed to the 'Participation Revolution'—that is, listening to and including people and communities in decisions that affect them. While these are not new ideas, the Grand Bargain was the first time such undertakings were codified in a high-level attempt at humanitarian reform (IASC & UN OCHA, 2020).

Developing a more effective humanitarian system that is localised and people-centric requires challenging the values, assumptions, and incentives that underpin it.

Developing a more effective humanitarian system that is localised and people-centric requires challenging the values, assumptions, and incentives that underpin it (Bennett et al, 2018; Collinson, 2016). While there is no single response model, proponents argue that a better way forward lies in an approach that engages a wider and more diverse set of actors in a complementary way and centred around addressing people's needs (Bennett & Foley, 2016; IARAN, 2017).

Aid theorists and practitioners have long argued that humanitarian impact will not improve as long as the system remains centralised and bureaucratic (Bennett et al, 2018; Bennett & Foley, 2016; Seybolt, 2009). Recognising that tweaks and piecemeal approaches are not enough to address systemic and persistent challenges, ideas of "new humanitarian basics" (DuBois, 2018), "a more modern humanitarian action" (Bennett & Foley, 2016), "network humanitarianism" (Currion, 2018), "a networked way of working" (IARAN, 2017) and a humanitarian system as "a network of networks" (Start Network, 2017) have emerged. Commonly, these new approaches involve concepts of dispersed power and capabilities, decentralised or distributed governance, collaboration, and shared benefits. These

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[7] See https://au.linkedin.com/in/samarawickrama

works articulate what a more inclusive, diverse and distributed humanitarian sector could look like, and how it can be achieved. All require 'Western' humanitarian organisations letting go of control.

Uses of advanced digital technologies in the humanitarian sector

Humanitarian uses of frontier technologies[8] fit within the broader context of the reimagining of humanitarian cooperation; one that is delivered through collective innovation, connected decision-making, and rebalancing of power (IARAN, 2017). The COVID-19 global pandemic accelerated some of these shifts as international humanitarian organisations repatriated many of their staff and our personal and professional lives moved largely online (Aly, 2020).

Distributed, open technologies, such as blockchain, were designed to address problems of cooperation (Casey & Vigna, 2018; Tapscott & Tapscott, 2016; Werbach, 2018). Some blockchains have the potential to deliver a more transparent, efficient and secure way of recording transactions across a distributed network (Werbach, 2018). These transactions are verifiable, immutable and can be automated, displacing a need for trusted intermediary institutions to keep a central database of information (Catalini & Gans, 2019; Werbach, 2018). The core components of this technology—shared record-keeping, multi-party consensus, independent validation, tamper evidence and tamper resistance (Rauchs et al, 2018)—are enabling the emergence of new forms of cooperation between individuals and between organisations (Werbach, 2018, 2020).

Building on these claims, blockchain quickly generated significant interest in the humanitarian sector (Galen et al, 2018; GSMA, 2017; Sustania et al, 2017). A seminal sector report, *Revolution in Trust* (Mercy Corp, 2017), outlined the transformative opportunities of blockhain for humanitarian operations and governance. Proponents argue that blockchain is an adaptive infrastructure that can accommodate complex humanitarian needs and address common challenges of non-profit organisations, such as transparency, efficiency, scale and sustainability (Accenture, 2017; Mercy Corp, 2017). Some also suggest that its distributed nature has the potential to disrupt the traditional role and power of international humanitarian agencies and deliver a fairer aid system (Coppi & Fast, 2019; Sustania et al, 2017).

Many humanitarian organisations are working together with technology and sector partners to address common challenges using blockchain platforms and applications in diverse areas of aid and development operations, including cash programming, personal identification, fundraising and ethical supply chains. For example, the World Food Programme distributes material aid in refugee camps using its Building Blocks platform (WFP, 2020); Oxfam Australia and partners have delivered vouchers to crisis affected populations in the Pacific (Hallwright & Carnaby, 2019), and WaterAid America (2020) accepts cryptocurrencies for fundraising. In the Red Cross Red Crescent Movement, Australian Red Cross and partners developed a digital credentialing platform for onboarding and deployment of humanitarian staff and volunteers within and across humanitarian agencies (Australian Government, 2020); Norwegian Red Cross and partners are working on identity management for beneficiaries (HIP, 2019); and Danish Red Cross and partners are involved in a Community Currencies project (Santosdiaz, 2020) and the Humanitarian Distributed Platform initiative (Blakstad et al, 2020). By engaging in the process of collective innovation using distributed ledger technologies (DLTs) such as blockchain, humanitarian organisations are looking to build capability, bring in testers and adopters, and share the risks and costs (NetHope, 2018).

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The significance of DLTs for the humanitarian sector broadly lies in their potential to facilitate innovative ways to tackle social problems, to fundraise and to build trust (Blakstad et al, 2020; Mercy Corp, 2017). As shown by examples above, DLTs are used to develop applications and platforms for social and financial inclusion as well as to enable new ways to give. Significantly, they have the potential to enhance transparency and accountability across parties, as agreed rules, obligations and compliance can be encoded and automated on blockchain (Werbach, 2020).

Current projects in the humanitarian sector, mostly still in pilot stages, show how blockchain is primarily used to augment institutional processes rather than disrupt or disintermediate institutions (Coppi & Fast, 2019). Commonly, these projects are impacting the 'back-end' administrative operations rather than user interfaces.

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[8] The term 'frontier technologies' refers to "technological advances that have the potential to disrupt the status quo, alter the way people live and work, re-arrange value pools or lead to entirely new products and services" (McKinsey Global Institute, 2013). The term is technology-agnostic because frontiers of technologies change over time.

Many involve partners working together to co-create applications and related governance structures. Little is known about their social outcomes, given the early stages of development, highlighting the need to investigate how these technologies open up the conversation and bring humanitarian actors to work together in new ways (Blakstad et al, 2020; NetHope, 2018).

Another important appeal of DLTs for the humanitarian sector is their potential to redistribute power in support of localised approaches (Coppi & Fast, 2019; Mercy Corp, 2017). Again, there is little evidence of whether this is occurring in practice. There is a need to examine whether these experiments enable humanitarian work to become more locally engaged, for example, by automating financial or compliance processes which can prevent local organisations from participating.

A growing trend in the sector is the use of biometric data to register people in need and to deliver aid. Some humanitarian agencies argue that biometrics can ensure aid gets where it is supposed to go and could make it easier for affected people to get help (Bogle, 2019). The use of biometrics—such as fingerprints or photos—in humanitarian work is not new. The International Committee of Red Cross (ICRC), for example, has long used biometrics to reconnect families separated by conflict or to issue travel documents (ICRC, 2019). What is different, however, is how biometrics are being combined with other tools, such as blockchain or other types of databases, and a relative obscurity about how these tools and processes work, which together risk exposing affected people to harm.

In a world where more than a billion people have no proof of identity (World Bank Group, 2021), creation of a verified, secure and portable digital identity using biometrics could indeed prove transformative. For instance, a digital identity could help the 80% of refugees in countries of refuge where ID is required to get a phone or open a cash account.[9]

At the same time, there are numerous examples of how these tools can also cause harm.

The possible misuse of biometric data in humanitarian work has been the subject of significant debate in recent years (see, for example, Duffield, 2016; Jacobsen, 2015; Kaurin, 2019; Latonero, 2019; Rahman et al, 2018; Sandvik et al, 2017). Concerns include the risks of harm by creating a permanently identifiable record for a vulnerable person, potential access to people's data by governments or other organisations for non-humanitarian purposes, and the lack of regulations on how biometrics should be used.[10] Humanitarian

organisations must consider the type of data they are collecting, where and how long it will be stored, and who will have access to it—otherwise they risk exposing people to new forms of surveillance or misuse (Rahman, 2019; Veen, 2020).

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The approach to biometrics varies across the sector. A recent data partnership between Palantir and the World Food Program to improve food delivery in crises triggered an open letter from privacy and human rights advocates due to fears it may "seriously undermine the rights of 90 million people the WFP serves"(Responsibledata.io, 2019). Oxfam International instituted a moratorium on the use of biometrics in their work while continuing research into potential uses where safe to do so (Rahman et al, 2018). In 2020, the ICRC released a Biometrics Policy to help balance the responsible use of biometrics in its operations—for example, for finding missing persons or forensic work—with the considerable data protection challenges it poses. Humanitech, in collaboration with Australian Red Cross Migration Programs and legal department, is currently reviewing the Australian legal and regulatory implications of the use of biometric data for the purpose of reconnecting families using an international data matching database. More research is needed to prove the efficacy or necessity of biometrics use and how this can be done in ways that keep the details of vulnerable people safe.

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Complex automating technologies such as blockhain and biometrics pose challenges to safeguarding people's rights in most circumstances, but the potential for mistake or misuse is heightened in times of crises. The implications of our collective data and technology choices have become more noticeable in the time of COVID-19, with the accelerated use of digital tools in all spheres of life as communities locked down to stop the spread of the virus. Some states, grappling with

[9] The author has explored this topic in other publications—see Young and Jurko 2020, p. 13.

[10] As above.

the impacts on lives and livelihoods, quickly rolled out technological solutions to track and trace infections, and some are considering digital immunology certificates. A rapid evidence review on the use of technology in COVID-19 responses by the Ada Lovelace Institute (2020) aptly highlights the risks involved, including how these systems are vulnerable to privacy abuses, and how they can facilitate exclusion, discrimination and stigmatisation.[11] These risks underscore the importance of examining the role and impact of frontier technologies in humanitarian work.

Evolving humanitarian research and practice

Since the initial optimism about the potential of "digital humanitarianism" (Meier, 2015), there has been a growing critique of the implications of digitalisation on the sector (Duffield, 2016; Jacobsen, 2015; Meier, 2020; Sandvik et al, 2017). Concepts such as "surveillance humanitarianism" (Latonero, 2019), "algorithmic humanitarianism" (Currion, 2016) and "techno-colonialism" (Madianou, 2019) have emerged to describe how these tools are reshaping humanitarian practice and creating new or perpetuating existing vulnerabilities and inequities. Sandvik et al (2014, 2017) and Jacobsen (2015) have been instrumental in establishing scholarly critiques of "humanitarian technology" by interrogating the unintended consequences of humanitarian innovation.

Humanitarian data and technology experiments are trying to intervene in complex environments and relationships. They are situated within the broader cultures of humanitarianism and technology which differ in important ways. Most humanitarian groups have limited or no in-house technology R&D and rely on commercially run infrastructure. This raises the question of compatibility. For-profit technologies have been designed for precision, scale and control. Humanitarian work has high levels of uncertainty, complexity and needs to support people and communities in crisis (Young & Jurko, 2020).

The possible misuse of data and technology in humanitarian work has been the subject of increasing analysis in recent years. Sandvik et al (2017) interrogate new vulnerabilities in humanitarianism created by big data, public-private technology partnerships, shifting relationships between 'helper' and 'helped', and the new actors all this brings into humanitarian work. Scholars also highlight the risk of crises being used for experiments (Jacobsen, 2015; Latonero, 2018; Sandvik et al, 2017).

The humanitarian imperative is to 'do no harm' (Charancle & Lucchi, 2018) and there is a growing awareness that humanitarian innovation can slide into experimentation without accountability or consent, which may expose affected communities to new forms of intrusion, insecurity and inequality (see, for example, Morozov, 2013; Sandvik et al, 2014, 2017). The implications of introducing emerging technologies such as blockchain or biometrics into the sector that supports people in times of vulnerability need to be properly examined so that humanitarian organisations can take measures to avoid putting people in harm's way or to avoid replicating existing inefficiencies or inequities.

Data and technology innovations, such as blockhain applications, cannot be understood outside of the social context in which they are deployed, and they cannot be optimised to ensure they benefit society through technical improvements alone (O'Dwyer, 2018; Werbach, 2020). They are socio-technical systems, inseparable from the social interactions which shape how these technologies are designed, governed and used (Hayes, 2019). There is a need to examine practices that emerge through the interactions of social processes with these technologies in order to understand the opportunities and risks they present.

As the research, training and development on the use and implications of data and technology is largely happening outside of the sector, humanitarian organisations are looking to cross-sector partnerships to build skills and evidence, and to bring their humanitarian expertise and values to the research and development of these tools and systems. New ways of working are emerging, with technologists learning about vulnerability in different contexts and humanitarians learning about new tools, building skills and cutting through technocratic jargon. Australian Red Cross' Humanitech[12], Netherlands Red Cross' 510.global[13], and ICRC's Humanitarian Data and Trust Initiative[14] are examples of how the sector is working with academic and technology partners to build its capabilities to improve the impact and effectiveness of humanitarian action as well as its ability to advocate with authority for responsible practice and governance approaches. The organisations involved in these collaborations focus on how technologies work in contexts of vulnerability, just as much as what they are and what they can do. Further investment in evidence to inform a principled approach to data and technology in the humanitarian sector is necessary to maintain trust in the humanitarian system in the digital age (CHD, 2021).

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[11] The author has explored this topic in other publications—see Young and Jurko 2020, p.10.

[12] See https://www.redcross.org.au/humanitech

[13] See https://www.510.global/

[14] See https://centre.humdata.org/introducing-the-humanitarian-dataand-trust-initiative/

Conclusion

Digital transformation offers many opportunities to improve humanitarian action, but it also presents significant challenges that need to be properly examined. As Duffield (2013, p. 23) argues, "rather than uncritically embracing this future, humanitarian agencies need to understand what exactly they are buying into". Making the most of opportunities in the sector goes hand-in-hand with the need to develop knowledge, skills and standards on how to use these technologies in ways that protect people's rights. Understanding the consequences, taking measures to avoid risks, and designing systems and processes with the needs of vulnerable groups at the centre will ensure humanitarians 'do no harm' in the digital age.

Understanding the consequences, taking measures to avoid risks, and designing systems and processes with the needs of vulnerable groups at the centre will ensure humanitarians 'do no harm' in the digital age.

The scholarly field of humanitarian technology studies is emergent and fast-moving. This essay demonstrates a knowledge gap in understanding the implications of automated decision-making (ADM) and frontier technologies on humanitarian contexts. We do not yet know the extent of the impact these technologies have on humanitarian practice, how they influence outcomes for particular groups nor what their short-term versus longer term impacts may look like. There is an opportunity to collect and interrogate empirical evidence of how technology tools and initiatives are designed, used and governed in the humanitarian sector, who they benefit, and how organisations behave and change as a result of these interactions.

The mismatch between humanitarian intent and how today's technologies are developed and deployed raises questions about how best to design and use data and technology tools for humanitarian work. Previous studies on the introduction of new technologies in humanitarian work suggest that affected communities need to be involved in design of technology products and strategies for their safe use from the outset (Bourne, 2019; Coppi & Fast, 2019; Mays, 2018). By gathering empirical evidence we can inform strategies, tools, and frameworks for the responsible, ethical, and inclusive design, use and governance of frontier technologies in the sector.

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