



# The Future of Vulnerability: Humanity in the Digital Age

Ensuring Data and Technology  
Benefit People and Society

2020 Report

**humanitech**

 Australian Red Cross  
THE POWER OF HUMANITY

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## Introducing Humanitech

The humanitarian challenges of the 21st century are complex and interconnected. Fast-moving shifts in technology, climate and demography are shaping the world we live in, with significant impact for people in Australia and across the world, bringing new opportunities but also creating new vulnerabilities.

Australian Red Cross has established Humanitech, a think+do tank working at the intersection of humanitarian action and technology. In collaboration with partners across sectors, we are developing unique insights into the social implications of frontier technologies, creating or amplifying solutions with the greatest potential for social impact, and influencing so that technology serves humanity by putting the needs of people at the centre. Our efforts are generously supported by our Founding Partner, Telstra Foundation.

We are a proud humanitarian industry partner in the new Australian Research Council [Centre of Excellence for Automated Decision-making and Society](#).

Through the ADM+S Centre we are working with leading researchers and institutions to develop evidence on the opportunities and the potential harms ADM tools and systems may present, with a special focus on those most vulnerable in our society. We will also help bring research and humanitarian practice together by including our staff, volunteers and communities we work with in the co-production of strategies, tools, and protocols for the humanitarian sector and the broader community.

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# Foreword

Australian Red Cross welcomes this Humanitech report,  
Future of Vulnerability: Humanity in the Digital Age.

Every day, in so many ways, from welcoming new Australians to honouring first Australians, we see people helping people. When humanity is at the core of our society, individuals, families, neighbourhoods and communities thrive.



**Kym Pfitzner**  
Interim CEO, Australian Red Cross

## Technology is helping us improve society and address some of the more significant issues facing humanity. Helping us empower people and communities to build resources and resilience. Helping us predict, prepare and respond to crises.

This is critical at the time when humanitarian work is getting more complex and protracted. The world is in the grip of the most serious pandemic since the Spanish flu in 1918. The human impacts of extreme weather are growing. The gap between the haves and have nots is widening. People are becoming more socially isolated, more distrustful and more anxious. Facing these challenges, technology is helping us deliver the right kind of help at the right time to where it is needed most.

However, technological progress comes at a price, often at the expense of the most vulnerable in our society. Technology can exacerbate existing or create new problems. Technology involves risks of mistake, misuse and malfunction, potentially exposing people to new forms of intrusion, insecurity and inequality.

Last year, Australian Red Cross joined CSIRO and experts in business, academics and non-profit leaders to look at what kind of country Australia could be in 2060, in the Australian National Outlook Report 2019. Using sophisticated, integrated modelling, we explored several possible outcomes to help Australians continue to enjoy the best quality of life. We asked ourselves, how will people adapt and thrive in this new world economy?

The answer is to build trust, confidence and hope. We all have a duty of care to the people we represent and communities we are a part of. To be better humans and take better care of our planet. To be the voice of humanity.

Australian Red Cross has created Humanitech, with a mandate to put 'humanity first' in the use of frontier technologies like blockchain and artificial intelligence. Humanitech brings together the best minds to understand the social implications of technology, so that it better serves humanitarian needs in our community.

This Humanitech **Future of Vulnerability: Humanity in the Digital Age** report invites us all to imagine and chase the possibilities by putting humanity at the centre of technology.

**Kym Pfitzner**  
Interim CEO, Australian Red Cross

# Introduction

Humans have made and used tools to reduce suffering throughout our history. These technologies, from ancient tools to catch fish or start fires, to modern tools to send messages or transform bodies, have helped to relieve hunger, cold, isolation and incapacitation, to improve our lives and to serve our needs better.

Alongside this story of technology for humanity sits a story of inhumanity. Of groups excluded from the benefits of technologies, of new tools tested on vulnerable groups, misused in both unintended and intended ways, and the increase in suffering this leads to.

This tension in technology and how it is used, of tools and weapons, humanity and inhumanity, has helped to shape the modern humanitarian movement. Red Cross<sup>1</sup> was established in the 1860s to reduce the suffering of soldiers, including getting messages to their families when they were far away. The humanitarian movement was in part a reaction to new technologies, as guns and other weapons became increasingly sophisticated and automated, inflicting new extremes of suffering. At the same time, since its inception modern humanitarian work has used tools such as data, analysis and communication to reduce the vulnerability of individuals and groups.

We are at a similar turning point and set of tensions today. The latest cycle of scientific and technological discovery has generated new tools for communication and data, artificial intelligence and machine learning, biometrics, and cyber-physical systems of the Internet of Things, such as drones and self-driving cars. Hopeful about these innovations, early techno-optimist visions for digital humanitarianism crystallised around the earthquake in Haiti in 2010, which mobilised online thousands of volunteers across the world to support humanitarian relief efforts on the ground.

Since then, evidence has come to light of how new tools are also harming vulnerable groups, entrenching or causing inequality, intrusion and insecurity. A critical research agenda has emerged around 'humanitarian technology' led by academics and practitioners like Kristin Sandvik, Giulio Coppi and Robin Mays, and there are active policy debates around the world about technology and ethics, human rights, consumer rights, privacy and sovereignty.<sup>2</sup>

At the same time, technology is being used to reduce vulnerability, offering people dignity and safety in trustworthy ways. We've gathered some of these stories in this [report](#) alongside examples of [harm](#) in the hope that humanitarians and partners in technology, business, government, academia and civil society can collectively learn from both. Too often at the intersection of humans and technology, vulnerable groups bear the brunt of the costs of new tools, suffering most when these are 'weaponised'<sup>3</sup> and benefitting least from their usefulness. It's time to break that cycle.

# Vulnerability, technology and humanitarianism today

## Vulnerability

- › 1 in 110 people globally are displaced<sup>4</sup>
- › 1 in 7 people globally have no formal identification<sup>5</sup>
- › 1 in 3 adults globally have no bank account<sup>6</sup>
- › 1 in 8 people in Australia live in poverty<sup>7</sup>
- › 1 in 25 people in Australia face deep social exclusion<sup>8</sup>

## Technology

- › Discrimination through algorithmic bias has been shown in most sectors impacting vulnerability, from social services and healthcare, recruiting and finance, to criminal justice.
- › Many countries, including Australia, are testing facial recognition tools with high error rates for minority groups, with little ability to scrutinise them, and in contexts of high vulnerability such as policing.
- › Organised social media manipulation campaigns occurred in at least 70 countries in 2019, up from 48 countries in 2018 and 28 countries in 2017.<sup>9</sup>
- › Many welfare services are being digitised in Australia and elsewhere, despite vulnerable people frequently having limited or no internet access. In Australia, 1 in 10 people have no fixed internet connection.<sup>10</sup>
- › COVID-19 has accelerated the use of digital tools and platforms in all spheres of life. Many countries, including Australia, are using technology in an effort to trace and contain the virus. In addition to questions of access, this raises concerns for privacy and human rights.<sup>11</sup>

## Humanitarianism

- › Charities are almost exclusively relying on commercial technologies, with almost no in-house R&D or code. E.g. nearly 90% of not-for-profits in Australia use for-profit software to store and analyse their data, and nearly 100% use Facebook as their primary social media platform.<sup>12</sup>
- › Data-driven humanitarian work is creating new vulnerabilities as it can "turn unwitting humanitarian organizations into intelligence providers."<sup>13</sup>
- › Predictive tools are creating new vulnerabilities and challenging humanitarian values, as decision-making is informed by opaque algorithms' analyses.

# Recommendations

It is time to put humanity-first. To earn the trust of vulnerable people and communities, and put civil society at the heart of the research, development, use and governance of frontier technologies.

The case studies in this [report](#) give indications of how this can be done; all are testing and moving towards beneficial ways of using new tools in contexts of vulnerability. They suggest, along with the section on the [agenda for change](#), a set of questions that civil society-led platforms like Humanitech offer a place for diverse stakeholders to explore together.

We see opportunities in three core areas: shifting norms, expanding methods, and exploring 'what ifs'. These areas align with Humanitech's vision to work across policy, practice, research and development.

## Shifting norms

Vulnerable groups and civil society need to be at the centre of this work. We need regulation (including co- and self- regulation<sup>14</sup>) focused on specific contexts, use cases and misuse. We need to shift from inequality, intrusion and insecurity to dignity, safety and trust.

To do this, we believe we need a 'reset' in mindsets and cultures. We need to shift:

*from* the lost learnings and duplication of siloed technological solutionism *to* recognising the complexity of these issues and opportunities, pooling resources and sharing infrastructure

*from* passively embracing emergent technologies and data misuse in a culture of 'fail fast and break things' *to* scrutinising ethical considerations, testing responsibly, being transparent and realistic about the benefits *and* harms in the short and long run, applying evidence-informed decision-making about the impact of new tools, and developing regulation for specific contexts, use cases and misuse

*from* digital exclusion and the exclusion of civil society from the development of new technologies *to* putting vulnerable groups at the centre of the work, and civil society at the core of product development.

## Expanding methods

We need to change how tools are used (and misused), focusing on methods as much as intentions or outcomes. We need multistakeholder collaboration, beginning with an exploration of what that looks like.

We need to expand our focus and methods at the intersection of vulnerability, humanitarianism and technology in several ways:

1. Where most research in this space to date has focused on disaster and crisis work, we also need to consider vulnerability in everyday life
2. Where most research has focused on communication technologies, we also need to interrogate frontier technologies like artificial intelligence, new cyber-physical systems, and prepare for the next frontier of technologies, both the potential harms and benefits
3. Where work in this space has been underpinned by third party, commercial technologies, we need to expand to multistakeholder, reciprocal partnerships, with technologists being led by humanitarian practitioners who are in turn led by the communities they serve, and funders learning to value and operate in languages other than their own, meeting communities in their stories and contexts
4. We need to expand who's involved in this work, recognising the role of vulnerable communities as their own decision-makers, and the role of translators to support the use of a new beneficial technology in the field.

## Exploring 'what ifs'...

To capture the benefits of frontier technologies, we need to look ahead creatively and collaboratively to ask 'what if'?

We have shared three 'what if' questions here:

**What if we used what we already have differently?**

What frontier technologies that already exist could be adapted to put humanity first, and what is needed to make that happen?

**What if we had technologies that don't currently exist?**

What needs of vulnerable groups and humanitarianism are not served by frontier technologies, and what new technologies might meet those needs? How might those new technologies emerge? Which of these technologies could a market support, and which would need government, philanthropic or crowdsourced support?

**What if the system was different?**

What blocks and dependencies need to be addressed for the potential of frontier technologies to transform humanitarian work and end cycles of vulnerability?

We invite you to explore these shifting methods, expanding norms and 'what-ifs' alongside us.

# Key concepts

This report is framed by three key concepts: vulnerability, humanitarianism and frontier technologies.

Here is what we mean when we use these terms.

## Vulnerability

This refers to people and communities at risk of or experiencing systematic and persistent exclusion from resources, opportunities and rights the rest of society has. It includes vulnerability in both extraordinary humanitarian crises and in everyday individual life.<sup>15</sup>

Understanding vulnerability is a complex process and vulnerability is hard to standardise. It requires context, qualitative and quantitative insights, and regular re-consideration. For instance, a person not vulnerable in one context, such as a location, may be vulnerable in another location. This is one reason why humanitarians are currently debating the need to 'localise'<sup>16</sup> the global Sphere standards which are often used to assess vulnerability.<sup>17</sup>

Open and informed debates like this are critical as humanitarians consider using automated technologies. Their deployment in contexts of vulnerability needs to be continuously assessed to ensure they help, not harm people and communities (see the case study '[Preventing harm](#)').

## Humanitarianism

This refers to the international humanitarian movement founded on principles of humanity, neutrality, impartiality and independence<sup>18</sup>. An additional 'do no harm' principle was adapted from the Hippocratic Oath in the 1990s, and aims to limit the negative effects of humanitarian aid. It has since been extended to development and national policy contexts.<sup>19</sup>

Technology is changing the nature of humanitarianism. New tools are empowering vulnerable people to help themselves in some contexts, and more humanitarian work is now intermediated by technology or done remotely. This brings new actors into these contexts, such as technology developers and companies who may not know the humanitarian principles or "have enough contextual understanding to effectively assess the impact of their own work in relation to the "do no harm" principle".<sup>20</sup>

## Frontier technologies

This term 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".<sup>21</sup>

The term is technology-agnostic because frontiers of technologies emerge over time. Today the frontier is big data and automated decision-making, next it may be the widespread adoption of cyber-physical systems and the Internet of Things, beyond that something else again. For this reason, we also call frontier technologies emerging or new technologies, or simply 'new tools.'

Debates about technology's role and impact on vulnerability must look beyond what any new technology does to consider how it is used, who decides and oversees that, and how it impacts on different groups of people.





# Vulnerability and technology today

**This section looks at some ways that frontier technologies impact vulnerability, particularly through inequality, intrusion and insecurity.**

We focus on how new tools are tested, and how they target and track people, including some specific examples. We also briefly consider the digital divide, and the broader cultures of humanitarianism and technology around these issues.

The bulk of this report was completed before the scale of the COVID-19 pandemic became clear. Since then, we've seen the accelerated adoption of digital tools in all spheres of life as communities lock down to stop the spread of the virus. Some states, grappling with the overwhelming impacts on lives and livelihoods, quickly rolled out technological solutions to track and trace infections, and some are considering digital immunology certificates. This has led to active debates in Australia<sup>22</sup> and globally<sup>23</sup> about the implications of these tools on people's rights. A recent rapid evidence review on COVID-19 technology by the Ada Lovelace Institute aptly highlights the risks involved, including how these systems are vulnerable to privacy abuses, and how they can facilitate exclusion, discrimination and stigmatisation<sup>24</sup>. The implications of our technology choices are unfolding 'in real time', emphasising the urgency of having a robust conversation about technology's role and impact on vulnerability.

# Testing

## How product development fails vulnerable groups

Vulnerable people are usually not involved in designing or testing new tools. They often also have less choice to opt out of tests they are included in (e.g. if it involves accessing a welfare service), and less choice to forgo incentives offered by tests (e.g. if it offers payment for personal data to a person in financial distress<sup>25</sup>). In humanitarian contexts specifically, testing also needs to consider the imperative to do no harm.<sup>26</sup> Organisations making new tools may intend no harm, and may have the best intentions, but the humanitarian imperative is to do no harm.

Product development methods matter even more when they are applied to automating analyses of and decisions about vulnerable people, yet these problems around inclusion, incentives and the do no harm imperative persist. For instance, facial recognition technologies have been developed in ways that entrench or worsen discrimination. Research shows these tools misidentify women 20% more than men, and this error rate rises to 34% for darker female faces relative to lighter male faces.<sup>27</sup>

Getting something wrong a third of the time is not acceptable in most contexts of low vulnerability. Say 1 in 3 apples from an orchard are rotten. In a consumer market with product transparency and choice, people can stop buying apples from that orchard. In a regulated industry with an imperative to do no harm and strict quality control (such as medical products), the orchard owner pre-emptively chooses to, or is compelled to comply with rules to not sell rotten apples.

Yet in contexts of high vulnerability, where the tolerance for such errors should be lower not higher, facial recognition technology is being tested or used with little scrutiny. Law enforcement and border clearance in the US are trialling facial recognition.<sup>28</sup> In Australia, a national facial recognition database is being considered<sup>29</sup> and Perth has reportedly started testing facial recognition technology without local consultation<sup>30</sup>. Some police are reportedly already using Clearview AI, a poorly understood private facial recognition service which is being trialled in a policy and regulatory vacuum.<sup>31</sup> Privatising and automating parts of public sector decision-making is also being considered in areas such as visa processing.<sup>32</sup> These services can be piloted without involving vulnerable people, with no independent quality assurance, and no transparent reviews of compliance with existing rules and regulations.<sup>33</sup>

Testing new technologies to help in humanitarian contexts has great potential, but these risks remain. For instance, research has questioned accuracy claims of One Concern, a platform using data and machine learning to help cities create disaster response plans.<sup>34</sup> The use of personal data during the Ebola crisis in Liberia has raised questions about privacy and other rights. As Sean McDonald writes, new tools can create new vulnerabilities in crises when they trade ‘...on the social license created by disaster to experiment with the lives of those affected, under the implicit assumption that it can’t make the situation worse.’<sup>35</sup> Similar issues have been reported around the ways in which location data from people’s phones is being shared to combat the spread of the coronavirus in China and South Korea.<sup>36</sup>

*“Digitisation processes, while holding potential for automation and simplification, can also increase and amplify the disconnect between decision makers and evidence. The ability to explain why you’re doing what you do, for example, to explain impartiality, to prove you’re serving those who are the most vulnerable based on need, is fundamental to humanitarian principles. The moment you start trusting a blackbox, how do you know that you’re doing just that?”*

*Giulio Coppi, Digital Specialist for Field Operations, Norwegian Refugee Council*

These use cases, and their impact on vulnerability, suggest a mismatch between humanitarianism and how new technologies are developed and work today.

# Targeting

## Personalisation and prediction as inequality and intrusion

Most new technologies use personalisation and prediction in some way. For instance, Facebook, the world's biggest social media platform, reportedly makes more than 200 trillion predictions a day.<sup>37</sup>

Theoretically, these processes can be empowering, by anticipating and meeting more people's needs than standardised 'impersonal' processes can. But in contexts of vulnerability, this theory can become harmful practice that permits discrimination and stigmatisation. Personalisation can enable inequality, prediction can become intrusive, and the overall experience for vulnerable people can be one of insecurity. Opaque and unaccountable systems of 'intelligence' that seem objective assign subjective labels to people whose voices aren't heard.

For instance, risk assessment tools are being used in law enforcement and criminal justice. Judges in the US use algorithms to predict how likely a criminal is to reoffend, using this information to help decide release dates. This is despite evidence of racial, gender and economic bias in the algorithms, and despite them being private and opaque services with little accountability.<sup>38</sup> Research has uncovered the potential for similar harms in a 'Suspect Target Management Plan' used in NSW.<sup>39</sup>

Just as the accuracy and accountability of these new tools is questioned, their potential to alter perceptions is also concerning. The Council of Europe's Committee of Ministers has warned that "personalised levels of algorithmic persuasion may have significant effects on the cognitive autonomy of individuals."<sup>40</sup> Personalised campaigns of social media manipulation have been recorded in 70 countries, including Australia.<sup>41</sup> Such tools can amplify biases and obscure discrimination, with severe consequences for social cohesion and individual and group rights.<sup>42</sup>

The personalisation of new tools also makes it hard for people to judge if they are being treated fairly relative to others. This alone creates mistrust and insecurity and, although companies usually don't make algorithms available for independent assessment, there is evidence this mistrust is warranted. For instance, Amazon has scrapped an AI recruiting tool it developed after finding it was biased against women.<sup>43</sup> A new Apple credit card has made vastly different credit offers to couples with identical credit profiles, raising questions about biased algorithms.<sup>44</sup> Research suggests Facebook's platform can be used to discriminate against vulnerable groups when advertising for housing, employment and credit.<sup>45</sup>

Discrimination through digital personalisation and prediction extends to people's health. Research on the impact of automated decision-making and personalisation in healthcare, including in Australia's National Disability Insurance Scheme, has shown it can entrench or increase existing inequalities based on factors like race or income, and instead benefit less vulnerable groups.<sup>46</sup> This may be so even if the tool is intended to benefit vulnerable groups.

As Giulio Coppi observes, "Trying to predict needs, for instance in automated needs assessment processes, it's impossible just like the attempt to pre-define the sorts of factors involved. Ideas for how to do this often come from technologists, who can have a tendency, when they're new to a domain, to start by asking 'what's the most difficult problem here,' and then try to solve that."

These complexities reflect real-world structural issues that can't be solved by technology alone. As stated before, a company commonly intends to do no harm, but the humanitarian imperative is to do no harm. Risk and uncertainty can't be avoided (perhaps more often noted in small print than sales pitches), but if there is a spectrum of harm and a point on that spectrum at which the harm becomes inhumane whether it was intended or not, which side of that point do these examples of personalisation and prediction sit?

# Tracking

## Vulnerability under surveillance

Shoshana Zuboff's *The Age of Surveillance Capitalism* documents the intrusiveness and inequality of wide-scale data collection and use by organisations with little accountability.<sup>47</sup>

Personal data is collected through online tracking, phones and other 'smart' devices in ways that are difficult to see and hard to avoid. This data can be shared and used in ways that breach trust, not only for things like unwanted advertising, but in ways that seek to control vulnerable people. For instance, technology-facilitated abuse is now endemic in domestic and family violence in Australia.<sup>48</sup> The UK's Information Commissioner's Office recently found that the Department of Education breached data protection rules after civil society organisations raised concerns about student data being shared with other departments for immigration checks.<sup>49</sup>

In her book *Automating Inequality*, Virginia Eubanks traces the origins of these intrusive data-driven approaches for controlling vulnerability to the 'scientific charity movement' in 1800s America. For this generation of social reformers, the poor were not to be trusted. Caseworkers collected evidence from police, clergy, teachers, nurses and others to sort the deserving from the undeserving poor. The process effectively "treated the poor as criminal defendants by default"; unreliable witnesses to their own lives.<sup>50</sup> In the 1900s, this trend and the eugenics movement merged into mass surveillance and data collection programs which facilitated humanitarian crises, including genocide.<sup>51</sup>

Today, the focus on data-driven solutions such as digital identity to help vulnerable people, combined with a lack of openness about how these processes work, risks repeating past tragedies. In a world where 1.1 billion people have no proof of identity such solutions 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.<sup>52</sup> 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 scrutiny in recent years.<sup>53</sup> 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. A 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."<sup>54</sup> Due to ongoing reservations, Oxfam International has maintained a moratorium on the use of biometrics in their work since 2015 while continuing research into this technology,<sup>55</sup> and the International Committee of Red Cross developed 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 this poses.<sup>56</sup>

While potential for mistake or misuse is heightened in crises, these complex technologies pose challenges to people's rights in most circumstances. For example, India's Aadhaar, the world's largest biometric ID system, is voluntary, but not having a card has been linked to people being unable to access food, healthcare, education and wages.<sup>57</sup> Here in Australia, a recent call for a national register for Aboriginal people immediately drew criticism and was dismissed<sup>58</sup>, but testing of a biometric digital identity system for all Australians is currently being planned despite fears of overreach.<sup>59</sup> Limited public consultation and civil society engagement is a common thread in these developments.

In vulnerable contexts, any collection of data can be experienced as harm, whatever the intention. As Australian cryptographer Vanessa Teague notes, things like compulsory survey questions are not "the right way to learn about stigmatised groups of people."<sup>60</sup> In Australia, Aboriginal and Torres Strait Islander communities describe being 'researched to death', especially when data is collected with no clear benefit to the people it is about.<sup>61</sup> It is also often assumed that data is intrinsically useful, for instance that "the act of surveilling itself will prevent bad things from happening. In fact, the reverse can happen."<sup>62</sup> Research into an Amnesty International satellite intervention aimed at reducing violence linked it to a 15-20% increase in violence in monitored areas.<sup>63</sup> Data collectors must know that the ability to collect data about people is not the same as the ability to use that data for those people's benefit.

## A note on the digital divide

The 'digital divide' refers to unequal access to technology, and it unquestionably increases vulnerability.



For instance, the digitisation of public services like Centrelink and My Aged Care, while beneficial to many, disadvantages the 1 in 10 Australians with no internet connection.

This topic is well-researched so we do not focus on it in this report. Of the existing research, we note in particular The Australian Digital Inclusion Index, annual research conducted by RMIT and Roy Morgan, as well as Internet Society research on the impact of AI and the Internet of Things on the digital divide, and the UN's report on the global rise of the digital welfare state.<sup>64</sup>

We also note that access is not the only digital divide that matters. In the future, it won't only be about connectivity, but increasingly also ability – people's capacity to understand and engage with the digital environment. Compounding this, equal access and equal capacity does not mean equal benefits. For most people in most contexts, accessing technology can be empowering, and this can be transformative in helping to tackle vulnerability. But as issues around testing, targeting and tracking explored here suggest, depending on the context, sometimes access can also increase vulnerability.

# The broader context

## Cultures of humanitarianism and technology

These issues of testing, targeting and tracking sit in a broader context of cultures of technology and humanitarianism. These cultures differ in important ways which raise questions of compatibility. Can the supply and demand and trade-off models operationalised by most commercial technologies co-exist with humanitarians working to give all a basic level of humanity? If they can co-exist, how can they, and what governance is needed for this to work? And if they can't, what do we do about it?

The mantra of 'human-centred design' puts people at the centre of technology, but in the practice of hyper competitive markets, this can translate into user testing for already-designed tools in order to maximise their operational efficiency and market scalability. In these contexts, the needs of vulnerable groups are often overlooked or an afterthought. As Robin Mays, Senior Researcher – Humanitarian Systems, University of Washington, says, **“Social agency is the core of successful, resilient communities. Our current approaches to developing technologies haven't created the methods for this yet.”**

Alongside this, most humanitarian groups have no in-house technology R&D and use third party tools. This outsourcing makes sense when resources are limited and a technology is outside humanitarian areas of expertise. But an over-reliance on commercial tools can lead to a risk of a humanitarian sector dependent on commercially-run infrastructure. It can also create cultural and ethical risks around the compatibility (or not) of for-profit technologies designed for precision, scale and control with humanitarian work, designed for high levels of uncertainty, complexity and to support unique individual needs.

*“There is a philosophical mismatch between technology made for the masses, and humanitarianism designed around the person. In the humanitarian space, we work at the fringes, whereas technology looks for the middle ground and chases mass adoption.”*

*Giulio Coppi, Digital Specialist for Field Operations, Norwegian Refugee Council*

A question underpinning all of this is if market logic and humanitarian logic conceptualise vulnerability in incompatible ways. Markets of supply and demand theoretically allow for zero of something and the 'zero-sum thinking' of winners and losers. Humanitarians reject these transactional frames, committing to a threshold of basic needs that must be met, a point below which trade-offs are not acceptable. As Robin Mays states, **“Humanitarians have to hold technologists accountable to their mission. ‘If you're creating vulnerabilities for [the communities I work with], I'm not going to pay you.”**

This way of thinking resists either/or questions and is more relational and situational. It allows for a culture led by local context and needs. Heather Leson, IFRC's Data Literacy Lead, describes it as, “The practice of as local as possible. It's about how do we state and honour the privacy things we need to do, and still engage with local communities?”

The alternative is antithetical to humanitarianism. In Giulio Coppi's words, **“What's the future of vulnerability? The worst case scenario I can think of is where the opinion of the community is not even required anymore, because drones, 3D vision, ground sensors, satellites and so on collect data and a decision using that data is made on the community's behalf, and they have no way to contest or oppose it.”**



“  
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”

*Robin Mays, Senior Researcher  
Humanitarian Systems, University of Washington*

# Agenda for change

As we use and learn about frontier technologies more, researchers, policymakers and advocacy groups have grown louder in their analyses of the issues and opportunities. The optimism of twenty or thirty years ago has also grown into critiques of ‘surveillance capitalism’, the ‘black box society’, ‘automating inequality’, ‘algorithms of oppression’ and ‘weapons of math destruction’.<sup>65</sup> Vulnerability is a recurring theme in all these works. They also show that an alternative is possible.

# Research



Specifically humanitarian critiques of new tools include concepts of **'surveillance humanitarianism'**, "the enormous data collection systems deployed by aid organizations that inadvertently increase the vulnerability of people in urgent need"<sup>66</sup> and **'algorithmic humanitarianism'**, "a hollow humanitarianism"<sup>67</sup> that takes the human out of the work, driven by "machine learning deepening some humanitarian problematics and introducing new ones of their own."<sup>68</sup> That there may be such a mismatch between humanitarian intent and how today's technologies are developed and deployed raises questions about how best to use these tools in humanitarian work. "If you start with the assumption that technology doesn't work with fringe cases, then you start thinking about using technology to free up time for your people to work directly with the most vulnerable"; says Giulio Coppi.

Concepts have also emerged to describe hopes for technology in humanitarian work, while staying mindful of risks. **'Digital humanitarianism'** advocates for the role of big data and digital volunteers in emergency response work.<sup>69</sup> **'Humanitarian engineers'** see themselves as distinct from engineers who focus on technology, instead focusing on people and communities.<sup>70</sup>

**'Humanitarian technology'** presents humanitarianism as a subset of technology, also focusing on emergencies and information technologies, but from a more critical standpoint. Sandvik et al 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. They highlight the risk of crises being used for experiments.<sup>71</sup>

Mays et al call for a **'humanitarian logistics'**. They describe an operational mismatch between business logistic technologies, "designed to prioritize cost minimization and profit maximization, to sustain a long-term market demand for their service and to limit the opportunity for uncertainty within their supply chain", and humanitarian effectiveness which aims "to prioritize a shared moral code over economic outcomes, reduce beneficiary dependence upon their service, and specifically operate in a contingent environment characterized by high uncertainty and context flux." In other words, "business logistics... cannot merely be re-engineered for a humanitarian context... academics could better contribute to the science of humanitarian logistics by pursuing new designs supporting the goals and constraints driven by humanitarian values."<sup>72</sup> Here the question is not, how can we use technology less in humanitarianism, it is, how can we create new technologies for humanitarianism?

# Open practices

Open data practitioners are working to create a new culture of technology within humanitarianism.

They have been galvanised by their success around Haiti's earthquake in 2010, when OpenStreetMap gave local and remote volunteers a platform to combine local data with newly public data from the UN, GeoEye and Digital Globe satellites.<sup>73</sup> Largely unmapped areas quickly became part of the most complete map of Haiti produced to date. It is now embedded in response planning and still used by decision makers today.

Along with Humanitarian OpenStreetMap, MissingMaps and Ushahidi<sup>74</sup> connect local communities, remote volunteers and mapping tools to build insight and trust for vulnerable groups. Many are exploring how machine learning can support these processes in ways that maintain local involvement. Humanitarian organisations are also using open source mapping and frameworks. For instance, the IFRC GO platform and Data Playbook promote equal access to data skills and tools, to support local leadership in humanitarian work.<sup>75</sup>

Data sharing between humanitarian organisations also has potential, for instance to coordinate funding and operational work. The open Humanitarian Data Exchange (HDX), run by the United Nations Office for the Coordination of Humanitarian Affairs' (OCHA) Centre for Humanitarian Data, shares data across hundreds of organisations and crises while maintaining organisational and individual accountability.<sup>76</sup> Over 6,500 datasets have been reviewed to ensure they do not include personal identifiable data. The exchange also has HDX Labs in Dakar, Senegal and Nairobi, Kenya.

As noted earlier, while ideas of vulnerability 'standards' are hard to conceive and easily harmful, data standards are needed for information to be open or shared. HDX's tools for automated charting use the Humanitarian Exchange Language (HXL), a simple data standard inspired by social media hashtags.

As the value of tools is so much determined by how they are used, the barrier to fulfilling the potential of this emerging data infrastructure may be less the resources available and more the ability of groups to use them. More investment, research and training is needed on this.<sup>77</sup> An example of what that might look like is the Trust Alliance, an Australian Red Cross-led collaboration between Australian humanitarian, academic and technology groups to research and develop a trustworthy digital identity ecosystem (see '[Decentralising data](#)' case study).

Governance and culture are also critical to how things are used. Mark Duffield notes a governance challenge for open, distributed projects - the 'distancing tendency' that can come with remote work. This is particularly critical in contexts of vulnerability. When technology uncritically replaces on-the-ground truth it creates space for harm and accountability vacuums. At the same time, it can also 're-allocate risk' positively by enabling local communities to manage and lead responses on their terms, supported remotely by volunteers and tools who they can facilitate, like any manager does their team.<sup>78</sup>

Culture is perhaps the hardest thing to 'do'. As Heather Leson, IFRC's Data Literacy Lead involved in much of the open work noted here, says, "We still have to work out better ways to involve vulnerable communities, and respect and honour them." It takes humble and open conversations in all directions. "We need to build a shared dialogue. We need to figure out how we talk about it in terms of the opportunities and gaps, and how humanitarians can talk technology, and how technologists can talk humanitarianism."

Robin Mays also highlights the importance of locally relevant solutions, noting, "If you want the voice of the community, your technology has to be at their language level. Whatever is most ubiquitous in the community is what you have to use. Don't force vulnerable people to change at the same time as experiencing great need or trauma."

And of course, none of this can address underlying structural barriers. Research on the impact of technologies used in response to Hurricane Yolanda in The Philippines in 2013 found that access to communications technologies did not necessarily give people a 'voice', especially poorer communities, and that other things were needed to do this, such as social capital and a strong civil society.<sup>79</sup>

# Policy and advocacy

There are active policy debates around the world about the role of new technologies in society. Many converge around new harms and vulnerabilities and how to stop them, but there is also a focus on how to use new tools to tackle existing vulnerabilities, as humans have made tools to reduce suffering throughout our history. The double-edged nature of these policy debates echoes these age-old tensions around technology.

The biggest concrete regulatory shift of recent years, the EU's General Data Protection Regulation (GDPR), came into force in 2018, changing how organisations use personal data.<sup>80</sup> Given how new technologies' use of personal data impacts vulnerability (see '[Vulnerability and Technology](#)' section) some groups are using the GDPR as a starting point for a broader data responsibility (see '[Preventing harm](#)' case study).

The GDPR could signal the start of an era of regulation for new tools which have had relatively little governance to date over their impact on society and vulnerability. As Giulio Coppi notes, "Governments should be asking more of these questions. There is a lack of regulation, a normative gap, about how technology should serve humanity in the future, and how it impacts vulnerability. There is this idea that technology is somehow outside of society. It's not."

There is an emerging consensus from the public and businesses that the harms of new tools need to be regulated. For instance, a survey by the UK government's Centre for Data Ethics and Innovation found over 60% of people want more regulation of online targeting.<sup>81</sup> Highlighting the harmful impacts of new technologies, Microsoft has called for governments to "please regulate us."<sup>82</sup> It is also self-regulating for specific contexts by no longer providing facial

recognition tools to law enforcement, as IBM and Amazon have also done.<sup>83</sup> Civil society groups like Algorithm Watch, Ada Lovelace Institute, The AI Now Institute, Data & Society and the Data Justice project are researching and building public understanding of how AI and data are used now. In Australia, new organisations like Responsible Technology Australia and The Australia Institute's Centre for Responsible Technology join established ones such as Digital Rights Watch and Electronic Frontiers Australia, to do this work.

Governments are heeding these calls. For instance, the EU is proposing a regulatory framework for trustworthy AI that will consider the different risks created by different uses of AI.<sup>84</sup> The UK has proposed the broad new role of an online harms regulator.<sup>85</sup> New York City plans to appoint an Algorithms Management and Policy Officer to address algorithmic bias.<sup>86</sup>

In Australia, the Australian Human Rights Commission's Human Rights and Technology Project is exploring how to protect people from the harms of new technologies as well as foster their positive potential, in particular for people with disabilities. The AHRC's consultations with industry, civil society, academia and government have also expressly sought the views and experiences of people most affected by new technologies. The Commission is calling for regulation, including "co- and self-regulatory mechanisms that support and complement enforceable human rights and other laws", to ensure accountability.<sup>87</sup>

The Australian Government's draft Data Sharing and Release Legislation proposes to, amongst other things, use public sector data more effectively to address social issues.<sup>88</sup> It has also consulted widely in the drafting

process, including an express focus on Indigenous data. With the support of CSIRO's Data 61, the government has also developed a voluntary AI Ethics Framework which states, following consultation, that AI systems should be used to benefit all people, and should not unfairly discriminate against individuals or groups.<sup>89</sup>

Beyond regulation of harms, and more specifically focused on humanitarianism, the Harvard Humanitarian Initiative's Signal program advocates for the responsible use of information technologies (including satellites and other geospatial technologies) in humanitarian work, as well as advocating for people's information rights during disasters.<sup>90</sup> OCHA's AI Principles for Vulnerable Populations in Humanitarian Contexts advocates to avoid AI if possible, use AI systems that are contextually based, empower local communities, and implement algorithmic auditing systems.<sup>91</sup>

Some governments and groups are focusing explicitly on using new tools for humanity and to address inequalities. The OECD AI Principles advocate for AI "advancing inclusion of underrepresented populations, and reducing economic, social, gender and other inequalities."<sup>92</sup> France's 'AI for humanity' strategy aims for new AI tools to reduce inequality.<sup>93</sup> IEEE (Institute of Electrical and Electronics Engineers), the world's largest technical professional organisation, is dedicated to advancing technology more generally for the benefit of humanity.<sup>94</sup> In Australia, the 3A Institute at ANU is dedicated to "keeping humanity in technology" and is developing a new branch of engineering so cyber-physical systems can do this.<sup>95</sup> The Minderoo Foundation's Frontier Technology initiative is exploring the governance of AI and data to empower people and address inequality.<sup>96</sup>

# New combinations

A growing number of groups in this space are multistakeholder or multidisciplinary.



This reflects the 'multi-ness' of new technologies, in how they work, and the many contexts they are used in. New technologies intermediate multiple connections. For instance, social media intermediate our relationships, automated decision-making tools intermediate interactions between company and customer, digital welfare tools intermediate people's access to support. And new technologies are used in multiple contexts. For instance, facial recognition is used to unlock smartphones, tag people in photos on social media, at airport border controls, in law enforcement and many other contexts.

Multistakeholder groups include the UK government's Centre for Data Ethics and Innovation<sup>97</sup>, which gathers policymakers, industry, civil society and the public around questions of governance for data-driven tools, and the AHRC's Human Rights and Technology initiative. Multidisciplinary teams include Stanford University's Institute for Human-Centred Artificial Intelligence<sup>98</sup> and

Oxford University's Future of Humanity Institute<sup>99</sup>, both researching how AI can help humanity to flourish. In Australia, the new Centre of Excellence for Automated Decision-Making and Society connects academics, industry, government and communities to develop automated decision-making systems to benefit all.<sup>100</sup> Other relevant groups mentioned earlier include AI Now, Data & Society and Responsible Technology Australia.

A smaller number of groups are embodying the 'techné'<sup>101</sup> in technology, the making and doing. Open movements mentioned earlier have a strong culture of doing, building tools and infrastructure for open ecosystems. The Gradient Institute, an associate of the Centre of Excellence for Automated Decision-Making and Society, develops tools for ethical AI.<sup>102</sup> A focus on making says that how a thing is done matters as much as what is done. It is how the trust of vulnerable people is earned, through interactions over time, with continuous commitment, work and iteration. It is why the international development community has created

Principles for Digital Development and the H2H Network has been set up to develop products and services specifically for humanitarian organisations<sup>103</sup>. A smaller group again, like 3Ai, combine making and doing with intensely multistakeholder and multidisciplinary work. Humanitech believes it is this type of new combinations that are needed to ensure new tools are for humanity, not inhumanity.

# Emerging questions to put humanity first

As the section previous section demonstrates there is an agenda for change, mindful of both risks and opportunities, and exploring new approaches. Heartened by this, and knowing there is already enough terminology to keep up with, we simply advocate to put **'humanity first'**, to move beyond a focus on either technology or humanitarianism and focus on people and vulnerability.

Recurring insights are emerging around the idea of 'humanity first'. We've listed them as questions rather than principles because questioning is part of the cultural change needed to address issues and opportunities around vulnerability and technology. And because principles that stick tend to emerge through making and doing, relational work and practical testing, and dialogue (not reports).

## Questions

### ...about tools

1. What does a vulnerable person or group need to address their vulnerability, how does a new tool help enable that, and is it better than (non-tech) alternatives?
2. Does a new tool intend to do no harm, and do iterations of the tool over time do no harm, including unintended or new harms?
3. How does a new tool acknowledge and value any trade-offs it makes between speed of humanitarian impact and respect for the rights of vulnerable groups?
4. What ethical 'red lines' does a tool have, a threshold of basic needs that must be met, and how does it implement them?

### ...about infrastructure

5. What technology infrastructure do we need to facilitate civil society better as a whole to meet the needs of vulnerable groups?
6. What data infrastructure do we need to combine data about multiple people in useful, safe ways that also earn the trust of individuals in the dataset?
7. Does humanitarianism need technology infrastructure that is not commercially run, and if so, how can it coexist sustainably alongside commercial platforms?
8. Is technology infrastructure with a culture of 'move fast and break things', targeting and trade-offs compatible with humanitarian principles?

### ...about society

9. How can new tools be used to be proactive around existing vulnerability, to see off the need for help before it emerges, and build social progress, and how can this support human agency and autonomy?
10. How can we best equip people to manage the next set of new tools before knowing what those tools are?
11. At what point is trade-off thinking inhumane, regardless of the potential benefit?
12. How do we break the cycle of vulnerable groups paying the greatest price for new technologies?

# Oath of Digital Non-Harm

By Virginia Eubanks<sup>104</sup>

*I swear to fulfil, to the best of my ability, the following covenant:*

*I will respect all people for their integrity and wisdom, understanding that they are experts in their own lives, and will gladly share with them all the benefits of my knowledge.*

*I will use my skills and resources to create bridges for human potential, not barriers. I will create tools that remove obstacles between resources and the people who need them.*

*I will not use my technical knowledge to compound the disadvantage created by historic patterns of racism, classism, able-ism, sexism, homophobia, xenophobia, transphobia, religious intolerance, and other forms of oppression.*

*I will design with history in mind. To ignore a four-century-long pattern of punishing the poor is to be complicit in the “unintended” but terribly predictable consequences that arise when equity and good intentions are assumed as initial conditions.*

*I will integrate systems for the needs of people, not data. I will choose system integration as a mechanism to attain human needs, not to facilitate ubiquitous surveillance.*

*I will not collect data for data’s sake, nor keep it just because I can.*

*When informed consent and design convenience come into conflict, informed consent will always prevail.*

*I will design no data-based system that overturns an established legal right of the poor.*

*I will remember that the technologies I design aren’t aimed at data points, probabilities, or patterns, but at human beings.*

# Putting people at the centre of technology

New ways of working are emerging, and cultures of open conversation.

Technologists are learning about vulnerability in different contexts and the constant questioning required. Humanitarians are learning about new tools and cutting through technocratic jargon. Vulnerable groups are finding a voice at the centre of the conversation.

This section shows some of the ways tools are being used to support dignity, safety and trust for vulnerable groups. We look at how ideas for specific tools have emerged, how they work, who is involved, and how they reduce vulnerability. In most of these examples, people are placed at the centre of the work, with ideas like Robin Mays' 'community as HQ,' and other approaches to localisation. The organisations involved focus on how a tool works in contexts of vulnerability, just as much as what the tool is and what it can do.

*"When diverse groups are involved in programme design, humanitarian responses are more comprehensive, inclusive and can have more sustainable results. Inclusion of, and participation by, the affected population is fundamental to life with dignity."* <sup>105</sup>

*The Sphere Handbook*

# Decentralising data

## The Identity Project

### The Identity Project puts users in control of their data to make volunteering easier

The Identity Project is an Australian Red Cross initiative piloting a form of digital identity to support a change in volunteering culture<sup>106</sup>. People used to volunteer with a single charity over many years, so they would tolerate the lengthy sign up process to verify their compliance with requirements such as police and working with children checks, training such as psychological first-aid, and adherence to codes of conduct and ethical frameworks. Today many volunteers do not commit to a single charity, instead shifting by issue or event, and can lose interest during multiple sign ups. As one pilot participant said, "Every organisation is different, I have to learn a new system every time! I wish it was just the same."

Australian Red Cross realised if they could find a way to standardise accreditation and enable volunteers to share their credentials with partner organisations, it would speed up sign up and deployment processes, benefiting volunteering overall. They also realised it would save on duplicating compliance processes - it currently costs approximately \$250 – 550 to onboard and train a volunteer.

The potential benefits of this approach led to the establishment of the Trust Alliance, a forum of organisations who trust each other to verify volunteer's credentials. Current members of the Alliance are Australian Red Cross, RedR Australia, Oxfam Australia, Engineers without Borders, RMIT University, Swinburne University, CARE Australia and TypeHuman.

A decentralised, self-sovereign approach was identified as a way to give volunteers ownership over their own data and control over how it is shared. Using blockchain technology, partners can issue volunteers with unalterable digital representations of documents such as police and working with children checks or first aid and training certificates. These digital credentials are cryptographically stored in people's digital wallets and can be shared upon request with organisations in the network. The decentralised system is based on a user-in-control approach to managing personal data, whereby the individual acts as the focal point for their information and chooses what to share and with whom. This also saves organisations from storing the data centrally on their systems, improving data security.

This project has been piloted with small groups of volunteers to date, with plans for external launch. Pilot participants have responded positively to the idea of controlling their own personal data and creating a platform to make it easier to engage in humanitarian activity.

A critical component of trustworthy technology is being able to do routine administrative tasks involving your personal data without fear of how that data is stored or used. The Trust Alliance organisations see it as a promising pathway to an open and equitable identity ecosystem.

"As a sector, we need to disrupt ourselves," says Amanda Robinson, Head of Social Innovation and Humanitech, Australian Red Cross.

"We used to recruit volunteers to specific organisations and want to hold on to them. Now we say the most important thing is that people are helping out, that we're building a humanitarian workforce, working towards a common goal, for the benefit of humanity."

As part of Agenda 2030, UN member states have committed to providing "legal identity for all" to address the inequities experienced by more than 1.1 billion 'undocumented' people.<sup>107</sup> While there are many unanswered questions around how digital identity can work at scale, and how this might impact on vulnerability<sup>108</sup>, decentralised, user-in-control initiatives such as the Identity Project are contributing to debates on what a 'good digital identity' should look like.

# Distributing cash

## Sempo

### Sempo's use of blockchain, smart phones, NFC and local knowledge to build a cash transfer platform in developing countries

Meeting the needs of vulnerable people is the fundamental challenge of humanitarianism. Outsiders rarely know what a person needs. For instance, 70% of Syrian refugees in Iraq who were given aid in the form of goods sold it for cash, in order to buy what they really needed<sup>109</sup>. Distributing cash directly to where it's needed can empower people to decide for themselves, without barriers or intermediation. Direct cash transfers have been credited with helping 3 million Somalis avoid famine in 2017<sup>110</sup> and humanitarian cash assistance rose to a record US\$3.7bn in 2018.<sup>111</sup> Still, however, processes to transfer cash are manual and time-consuming, and as 1 in 3 adults globally don't have a bank account, financial exclusion remains an issue.

Sempo, a fintech start-up in Melbourne, is working with humanitarian organisations and vulnerable communities to overcome these barriers.<sup>112</sup> Its cash transfer platform uses phones and local shops instead of bank accounts and branches, in cultures where money transfers by phone are already common. For instance, in 2019 two thirds of all money transferred globally by phone was in Sub-Saharan Africa.<sup>113</sup> As Robin Mays observes, "What makes you a good logistician is understanding how your operations field makes decisions. It depends on what the domain values for its operational work."<sup>114</sup>

People are given an NFC card after a simple sign up process. Local vendors complete a 'Know Your Customer' (KYC) compliance check and are given Android phones to read the cards, like 'Tap and Go'. People can then buy things from the local vendor, or take the cash elsewhere. The platform is an open-source blockchain-enabled system which doesn't need much internet connectivity - it supports offline transfers, as long as vendors synchronise online weekly. The system also lets donors see where money goes.

Sempo works through civil society organisations who have relationships with local communities, to help make testing as responsible as possible, and support a 'community as HQ' approach. "We exclusively pilot in partnership with NGOs, because NGOs have frameworks for how to manage doing no harm. They know how to do this. We follow practices put in place by NGOs, that's not our area of expertise", says Nick Williams, co-founder of Sempo.

Each time the tool is piloted in a new location, there is transparency with the local community and only small amounts of cash are used, to build trust and understand unintended consequences with as little impact as possible. For instance, a pilot with Oxfam in Vanuatu involved deep community consultation to ensure that participants would be viewed by the community as appropriate recipients of the cash, and that the NFC cards they carried wouldn't become a proxy way to identify a vulnerable group.<sup>115</sup> The pilot successfully reduced cash transfer times by 96%. Another pilot, with Red Cross in Kenya, is one of the most used finance apps on the Ethereum blockchain, with over 20,000 users and 2,500 daily active users.

Sempo's for-profit model aims to be independently sustainable by charging transaction fees which are a fraction of the bank transfer fees in current cash transfer processes. Its blockchain is a public ledger with anonymised IDs, supported by KYC and other processes in order to comply with anti-money laundering and corruption regulation. It is a reminder that new tools being used to support a 'community as HQ' approach still need to comply with regulations and have processes for good governance. Helping people in need does not excuse ignoring legislation itself designed to protect vulnerable people.

# Searching for help

## Ask Izzy

### Infoxchange's use of search, smart phones and community design to help people find what they need

Vulnerable people looking for help can be confronted by overwhelming and opaque systems that are difficult or demeaning to navigate. To help people overcome these barriers for themselves, Ask Izzy is a digital directory to connect with 370,000 community services across Australia<sup>116</sup>. 10,000 people use it each week to look for help anonymously via their phone. As one person who had experienced homelessness explained for an evaluation of Ask Izzy, "Your emotions are high and all that sort of stuff you're going through with something you've never experienced in your life before. So from that point of view it's absolutely brilliant, 'cause it tells you, you open it up, and it literally tells you which tram to get onto and which stop to get off."<sup>117</sup>

Ask Izzy evolved out of technology not-for-profit Infoxchange's first project 30 years ago, to take the manual work out of finding a bed for the night. That project led to search software for government organisations, to support their services. Infoxchange then realised people the services were for could use the tool directly, as a growing number of vulnerable people owned phones (e.g. 70-80% of homeless people).<sup>118</sup> The 'Ask Izzy' service launched in 2016, developed in partnership with Google, realestate.com.au and News Corp.

A person using Ask Izzy is asked to share their location and answer a series of category-specific questions, then sees a list of relevant services filtered to match. Clicking on a specific service gives information about how to connect with it and what to expect from it.

"Homeless people involved in the original design of Ask Izzy talked about a man you'd ask for information, he wouldn't just give you a name and address, he'd give context, what it's like there, who to speak to... What are things like that which would help someone? It's not about us telling people what to do, it's 'here are some things that might help you,' and 'here is some stuff that might help you choose which one'," says Ben Shaw, Ask Izzy Product Manager at Infoxchange.

"Companies often focus on getting data from the user. We try to flip that mindset and ask how we can share our data more effectively and give people tools to navigate it? We don't ask about the person searching, we ask about what they're searching for. For example, if it's for food, is it a one off, an ongoing meal, or food in your home?"

Infoxchange works with the communities its service is for. For instance, a recent project worked with 40 services and people with a lived experience of family violence to make it safer and easier to navigate the 4,689 domestic and family violence services listed on Ask Izzy. One participant said, "As a person who's experienced family violence, independence and freedom is the most important to me. Ask Izzy puts the power in your hands – you make the calls."<sup>119</sup>

Infoxchange is trying to move beyond current conceptions of human-centred design and co-design to something more safely and authentically reciprocal. "Young people we work with tell us they're pretty wary about being trotted out to tell their story on a stage for a \$30 coffee voucher. How do we help people to build capacity and take ownership? What's the opportunity to be master of that?" A Product Advisory Group with a long-term and open brief is being set up and will include people with experience of vulnerability, people from community services and technologists. "People are willing to take part in co-design, the challenge is more how do we as people working in technology ensure we have the skill level and appropriate knowledge and safeguards to do that co-design well. The capacity building is on our side. What are people getting out of this? Can we make a promise that their input is going to be useful and used and lead to outcomes that benefit them?"

Ask Izzy is exploring use cases for chatbots or voice activated assistance.<sup>120</sup> "It gets more complicated when you're thinking about AI and machine learning. We need to understand, why would we do that and how would that help our users?" And regardless of the technology, or how well Ask Izzy works, a challenge fundamental to all humanitarian work remains. Once a vulnerable person has found a service, can it meet their need?

# Preventing harm

## 510.global

### 510.global's use of data, machine learning and community data to help plan and respond to natural disasters

160 million people are impacted by natural disasters every year, a number likely to increase with climate change.<sup>121</sup> Planning and response for these events is often slow and lacks data, for instance as Haiti's earthquake showed in 2010. "There is a lot of opportunity to improve coordination, to forecast the impact of a disaster, not just the weather", says Joachim Ramakers, Program Manager – Data and Digital Support at Netherlands Red Cross and a Policy Advisor on Data Responsibility at 510.global.

510.global<sup>122</sup> is researching and testing ways to make planning and response work faster and more effective, by using data and AI. They link information about places and previous disasters from sources like the Red Cross Movement, OpenStreetMap and drones, and apply machine learning to it, to assess the risk of future disasters and forecast their impact on places, with a focus on vulnerability, hazards and coping capacity.<sup>123</sup> Its tools, such as Community Risk Assessment and Impact Based Forecasting, are for both local communities and aid workers. Community Risk Assessment currently has data on over 85,000 communities in 16 countries.<sup>124</sup>

510.global has been set up as a social enterprise with in-house R&D that researches with academic and corporate partners. A multidisciplinary team crosses health, geography, law, politics, data and computer sciences, economics and business. Its products are open source, supplemented by data services supplied on a cost recovery basis to Red Cross Societies, and consulting work for external organisations like The World Bank.

The results of early pilots have been encouraging. In Peru, weather monitoring forecast a cold snap (a common local hazard). 510.global ran impact forecasting

two weeks before the government activated a state of emergency. Standard operating procedures for cold snaps are now being researched and developed for the government by the Peruvian Red Cross, the Climate Centre and 510.global. In St Maarten, when hurricane Irma hit, Missing Maps volunteers in The Hague worked with 510 on the ground in St Maarten, using drone and satellite imagery and other data to map structural damage and the materials needed to rebuild.

Prevention and preparedness are not new questions for humanitarians, and while new predictive tools can inform this work, they cannot remove uncertainty. And where they are used to decide how limited resources are allocated – who gets help, who does not – it raises major ethical issues. "There's a big responsibility issue with this. What if your algorithm tells you this area is going to be hit and you prepare for there, and then it deviates from there and hits somewhere else, and you're not prepared? What's your responsibility then?" says Joachim Ramakers.

These issues are complex. How is governance for decision-making managed when it is informed by tools which use machine learning which is not explicitly programmed and so not explicitly accountable, where gaps in data can be filled with proxy indicators which may or may not relate to correlation or causation, and where data collected remotely, for instance via drones, may override local insights from people on the ground? How is responsibility managed, and how are local communities involved?

510.global is grappling with these questions, transparently where it can. Dashboards rate all data sources for recency, quality, and completeness.

Local knowledge is prioritised and local data teams are set up. It aims for a culture of data responsibility. "We extend the scope of GDPR, not only to personal data, we take all the principles and the core of data protection, and add a do no harm and local perspective to that, and apply it to all data we work with, including demographic and anonymous data", says Ramakers.

A Data Responsibility Sounding Board made up of the CEO, Data Responsibility Lead and Legal Counsel meet monthly to review cases and how they were handled. People with a question or issue can check an issues log to see if there have been similar cases or questions in the past. The data responsibility policy itself aims to be practical and implementable<sup>125</sup>; an audit of how the policy is viewed internally showed the more relevant the policy was to people's work, the more compliance would go up.

"One of the biggest gains of GDPR is that it has provided a framework for us to discuss these issues, not just on an ad hoc basis or constantly reinventing the wheel", says Ramakers. "Case by case interpretation is always needed, but standardising processes allows more structured discussion, and more clarity on purpose. The next critical question is consent. The moment you record data about people in a humanitarian crisis, the more constrained you are in what you can do, especially as informed consent isn't always possible. There is some talk of a 'humanitarian exception', but it's a slippery slope. Where do you draw the line on exceptions? How do you define a humanitarian crisis? How do you protect data about vulnerable people from being used for political reasons, being used against the vulnerable groups it's about?"

# Finding loved ones

## Trace the Face

### A humanitarian-led approach to testing and using new tools to reunite families

Restoring Family Links has been core to the Red Cross mission since its inception. In the 1860s it helped families find soldiers missing in war, now Red Cross reconnects families separated among the tens of millions of people forced to flee their homes every year. It is complex work with people in very vulnerable situations.<sup>126</sup>

In recent years, humanitarians in the field have sought new tools for this work. The old method of using names is unreliable, because names are rarely unique, and spelling and translations vary. A newer method of photos on posters does not keep up with how fast people now move around. As mobile phones empower many people to reunite themselves without outside help, the separations Red Cross is now asked to help with involve people experiencing the most extreme vulnerability.

As a result, the Central Tracing Agency of the International Committee of Red Cross (ICRC), together with Restoring Family Links practitioners from a number of European countries, developed Trace the Face, an online tracing tool. The product development process is humanitarian-led; it identifies and preserves what already works and is important, and only then considers how new technologies can improve outcomes in this context. Any new technology must 'do no harm', so it cannot put missing people and their families in danger.

***"For me it is critical to transpose what we do in the field traditionally onto a digital platform, with a methodology that takes into account all of the confidentiality and consent processes we practice every day in the field, into the digital space. We have a history of explaining confidentiality and consent issues so that people understand how we use their information, so that they can decide whether to proceed."*** says Nicole Batch, Manager – Protection, Migration Support Programs, Australian Red Cross.

A public website explains the Trace The Face service.<sup>127</sup> Anyone who wants to use the tool must speak to a Red Cross person first. People can then either register as missing or check photos of people searching for missing loved ones.<sup>128</sup> Thousands of people have registered on the platform since it started in 2013 and a family is reunited every week.

The work follows strict data protection protocols.<sup>129</sup> The ICRC and National Societies communicate via their internal network, with data stored in Switzerland and an external data host that has been vetted by ICRC. There is minimal data sharing between societies for Trace the Face – photos are sent without names, and the tool is decentralised so no single Red Cross office has access to all the data. There are also separate databases to manage cases - Family Links Answers for National Societies<sup>130</sup>, based on Microsoft Dynamics Customer Relationship Manager platform, and Prot6 for the ICRC.

There's still a lot of in-person work needed, which also provides feedback loops to ensure the 'do no harm' principle is being upheld. The tool requires detailed discussion with potential users for informed consent and interviews

with Red Cross personnel to verify any potential matches. There is also in-person support for reunited families when they re-establish contact.

The program is open to frontier technologies (see RFL Strategy 2020-2025<sup>131</sup>) and is currently testing facial recognition technology with Microsoft<sup>132</sup> to see if the technology can speed up processing without doing harm. ***"We're still in the testing phase with facial recognition, because we know false positives can occur. We're not comfortable with the reliability of it yet, and it is one of many data-related issues we have to consider"***, says Nicole Batch. The development process differs from similar processes for many facial recognition tools. It is being developed with ethnically diverse faces, and instead of giving a positive or negative response when asked if two photos match, it is generating possible matches with a probability score from high to low.

The program is also considering other ways the digital tool could be more adapted in the future. For instance, how could data from people registered in refugee camps or at transit points be used if people subsequently became separated from their families? ***"What data could we access, and how would we deal with the ethics of that? Data can't be used for other purposes. So how can we ensure we inform people well, and people remain in control of their own data? Do people want a safe repository for their digital ID? And if they do, what are the implications of that for humanitarian work?"*** asks Nicole Batch.

# Deciding locally

## Justice Reinvestment

### A community-led approach empowering Aboriginal and Torres Strait Islander communities to make data-driven local decisions for social change

Aboriginal and Torres Strait Islander peoples are shockingly over-incarcerated, as 3.3% of the Australian population,<sup>133</sup> they represent over a quarter of people in Australia's prisons.<sup>134</sup> For some, this is lethal – 437 Aboriginal people have died in custody since the Royal Commission into Aboriginal deaths in custody ended in 1991.<sup>135</sup> Too little has been done to end this inhumanity.

In 2014, Aboriginal and Torres Strait Islander Social Justice Commissioner Mick Gooda called for a trial of 'justice reinvestment' as a potential pathway to change.<sup>136</sup> Australian Red Cross reinforced Gooda's call in its '2016 Rethinking Justice Vulnerability Report', which set out a clear case for systemic reform.<sup>137</sup> Justice reinvestment is based on the idea that communities are best placed to identify which problems affect them the most and what strategies to try which might address these issues.<sup>138</sup> The approach being used in Australia is community-led, place-based and data-driven at its core. It empowers communities experiencing over-incarceration to access and use data to develop local agendas for change. Ideally, the implementation of these agendas is then supported with government investments redirected from prison and other criminal justice system funding.

At the time of Gooda's call, the Aboriginal community in Bourke NSW was already working towards a community-led approach to lower criminal justice system interactions and had approached Just Reinvest NSW to collaborate. Since then, it has had a powerful impact. There have been 20–40% drops in the community's contact with the criminal justice system and savings of \$3.1m in one year from an investment of \$600,000.<sup>139</sup> Just Reinvest NSW is now working with communities in Moree and Mt Druitt to explore justice reinvestment approaches.

This data-driven work decentralises decision-making by locating it in communities, by facilitating communities' access to data they consider they need to make those decisions. The approach uses Indigenous Data Sovereignty principles including the right to "data that's contextual & disaggregated (available and accessible at individual, community and First Nations levels)".<sup>140</sup> It takes the GDPR's 'right to access' further, demanding a right for people impacted by major decisions to be involved in those decisions.

Justice reinvestment challenges many unspoken assumptions about data – that only experts can use it, that it can give 'the answer', and that it does not change much. Instead, data is something to be shared and interrogated, is dynamic and needs to be put into contexts to have meaning, and is used as part of community-led multi-stakeholder work.

# Conclusion

It is time to put humanity first. To ensure that benefits are widely shared. To end the cycle of vulnerable groups benefiting least and being harmed most by new technologies. Who should do this? How?



# Conclusion

Starting with how, we need to change how tools are used and misused, focusing on product development methods as much as intentions or outcomes.

No single tool is 'the answer', and as any quantitative expert knows, **"all models are wrong, but some are useful"**.<sup>141</sup> 'Blackbox' or unintended harms need to be interrogated alongside explainable or intended impacts. Humanitarians need to hold technologists to account and ask 'what next' once a tool has been used to meet an immediate need, ask what new vulnerabilities or risks may have been created in the process. Widespread methods of and cultures around testing, targeting and tracking must change, or new tools risk causing new humanitarian crises. They may be already.





**Vulnerable groups and civil society need to be invited to the centre of this work**, involved in generating insights and developing prototypes, in evidence-based decision-making about impacts, and as part of new 'business as usual' This goes beyond human-centred design and co-design, too often commercial processes which in practice prioritise scalability over vulnerability. And the core of this challenge, **how** to include vulnerable groups in processes which seek to serve them, applies to humanitarianism as much as technology. Ideas of locally appropriate 'bottom up' humanitarian innovation and 'community as HQ' are emerging at the intersection of humanitarianism and technology, and need to be put into practice within these spaces.<sup>142</sup>

**We need multistakeholder collaboration, beginning with an exploration of what that looks like.**

Where is alignment needed and possible between the interests and incentives of different groups? Where alignment (currently) doesn't exist, how can technologists be incentivised, or humanitarian organisations develop their own technologies? Where do conflicting norms and cultures need to compromise or shift? How can we develop common understandings and strategies around data and tools? **Civil society-led 'think+do' initiatives like Humanitech can play a central role exploring these questions, providing a space for different stakeholders to partner, to advance research and development across policy and practice, facilitating and testing new methods and tools.**

**Regulation (including co- and self-regulation) for specific frontier technologies is slowly emerging, but we also need regulation focused on contexts, and specific use cases and misuse.** A tool used in **this** context and in **this** way may be beneficial for **these** people and used in **this other** context and **this other** way may be harmful for **these other** people, or even **these same** people. Laws, codes, standards and policies need to apply this contextual approach to vulnerability. To ask, who does this tool make vulnerable, or who that is already vulnerable is made more vulnerable by it, and how is that addressed? Equally, how is or could this tool reduce vulnerability, and how is this potential being supported?

**The trust of vulnerable people needs to be earned.** Trustworthiness is interactions over time. It takes continuous commitment, work and improvement. It is another reason why **how** a tool works matters, as noted above. The change needed will come if stakeholders ask and explore questions together like the ones raised above. There is enormous potential for people in a trustworthy system to actively give – skills, time, data, kindness, care – to help each other as people's needs and contexts shift. It requires humility to know a new tool won't 'fix things.' **Neither humanitarianism nor technology can be a substitute for political will. But a collaborative, accountable, humble approach to frontier technologies has transformative potential to put humanity first.**

# Appendix: Methodology

## Genesis

### **Humanitech aims to contribute insights and evidence on the humanitarian implications of frontier technologies.**

Building on the themes outlined in the 2018 [Humanitech Position Paper](#), we commissioned this report to explore how data and technology are shaping the future of vulnerability. By putting a humanitarian lens on these issues, we wanted to understand the potential harms to people and communities, and especially those already on the margins. We also wanted to highlight opportunities to use data and technology in ways that improve people's dignity and safety in trustworthy ways. Finally, we wanted to put a spotlight on the important role civil society-led initiatives have to play in this space, as brokers and translators across sectors and disciplines and from communities to technologists, researchers and regulators.

The report intends to inform public debate on responsible innovation. It draws on information, opinions and advice sourced from a variety of individuals and organisations. While all care has been taken in its preparation, the report is not intended to be exhaustive.

## Approach

An independent researcher, Libby Young, was engaged to lead the research in collaboration with Ivana Jurko, Evidence and Influence Manager – Humanitech, and under the guidance of a specially convened Reference Group.

The Reference Group comprised Agathe Randrianarisoa, Caitlin Calder-Potts, Ellen McNaught, Nicole Batch, Petra Ball, Dr Panayiota Romios (Australian Red Cross) and Professor Ellie Rennie (RMIT University). The Group supported the project by helping guide the review of relevant literature, facilitating access to key informants, and providing critical feedback on the findings. This involved participating in two workshops, one to examine and input into the research plan, and one to discuss and review the findings, as well as providing written feedback at different report stages.

A rapid desktop review of research and policy documents, reports and articles was used to identify the key issues related to the humanitarian implications of frontier technologies. Alongside insights from the Reference Group, authors explored these issues further in ten semi-structured interviews with people in Australia and internationally, a mix of humanitarian workers and academics, for profit and not-for-profit technologists, people in social innovation or digital inclusion, product managers, and data responsibility officers.

The bulk of this report was completed in the period from January to April 2020, before the scale of the COVID-19 pandemic became clear. We aimed to present the findings at the Humanitech Summit in May 2020 (now postponed to 2021). The disruption caused by the pandemic led to delays in finalising the report, with final edits completed between August and October 2020.

Our intent was to capture the lived experience in the report through the use of quotes and case studies, highlighting the voices of people affected by intended and unintended impacts of how data and technology are used. The initial rapid nature of data collection and the subsequent delays due to the pandemic mean that we were largely unable to make this happen. This is a critical gap and one that will shape our Humanitech research agenda.



# Endnotes

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# humanitech



Humanitech is a think + do tank working at the intersection of humanitarian action and technology. We collaborate with partners across sectors to develop insights into the social implications of frontier technologies, create or amplify solutions with the greatest potential for social impact, and influence so that technology serves humanity by putting the needs of people at the centre.

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