CENTRE FOR HUMANITARIAN LEADERSHIP

Transformation in the aid and development sector?

Technology and innovation

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With the humanitarian system continuing to contend with "record numbers of people displaced for longer periods by natural disasters and protracted and/or escalating conflicts",[1] actors are "increasingly exploring the idea of humanitarian innovation". This ranges from 3D printing of medical supplies in an emergency, to using blockchain technologies to deliver humanitarian assistance such as cash and food assistance, as well as drawing on initiatives from the private sector in efforts to adapt and improve the aid system. Similarly, a research study by the European Parliament notes that "technological innovation can play an influential role in addressing the challenges of the humanitarian sector, including preventing and reducing human suffering during crises".

Yet, several experts in recent research note that while this technology and innovation has had some impact, the aid sector has "hit a plateau with innovation", and so-called, "pilotitis", which is a term coined to describe "fatigue from implementing small-scale projects that never scale up".[2] While humanitarian organisations have sought to apply the latest 'innovative' technologies to better meet the challenges of disaster and conflict response, the attraction to do this can come at the cost of, among other things, "unintentionally excluding those most in need or compromising humanitarian principles", which has been seen with shifts to digital registration or humanitarian independence being compromised through private sector partnerships.[3]

This section offers a collection of research, analysis and practical case studies that illustrate some of these new approaches being put into practice by humanitarian actors, as well as sharing some analysis from academics, experts, and practitioners who caution around the sectors 'enthusiasm' for technology-driven solutions.

[1] Global Humanitarian Overview 2021, UN OCHA (2020)

[2] Humanitarian innovation: The next step for greater impact, *The Humanitarian Leader*, Centre for Humanitarian Leadership (2021)

[3] See 'New technologies are changing humanitarian action, but don't expect they're inclusive', ODI (2019)

Case study 1: The use of blockchain technology in humanitarian aid

- Building Blocks, World Food Programme (2020)

  WFP's Building Blocks programme facilitates cash transfers while seeking to "better protect beneficiary data and control financial risks", as well as allow for greater collaboration. As a part of the programme, in 2017, WFP conducted a pilot in Pakistan, utilising blockchain technology "to test the capabilities of using blockchain for authenticating and registering beneficiary transactions", with the aim to give refugees in Pakistan greater choice and agency in how they access and spend cash assistance. The next phase of the programme was implemented in two refugee camps in Jordan. Using blockchain technology to facilitate cash transfers allowed over 100,000 people living in the camps to purchase food supplies.

  The programme has also been exploring the use of blockchain in supply chain tracing and digital identity management, as well as initiating new partnerships. For example, under UN Women's Cash for Work Programme, the partnership allows for Syrian women who participate in the programme to withdraw cash or make direct purchases at a supermarket in a Jordanian refugee camp.

- *Complexities of Implementation: Oxfam's pilot projects exploring blockchain technology*, Oxfam, Hallwright, J & Carnaby, E. (Aug. 2019)

  This paper looks at a pilot project delivered by Oxfam that employs blockchain technology. It draws out lessons from a case study of a pilot cash transfer preparedness project using blockchain technology in a Pacific Island country and seeks to highlight the "difficulty many not-for-profits are having engaging with the technology". It particularly focuses "on the non-technological, institutional challenges" experienced by the organisation.

The authors cover issues around understanding of the technology, capacity constraints and engaging in non-traditional partnerships, and offer tools and recommendations to help the sector in navigating this emerging technology.

- *Cash-in Hand: Electronic cash transfer and digital financial inclusion during crises and conflicts in the Philippines*, Oxfam, Dalabajan, D. (2019)
  This paper presents learnings from Oxfam's experience working with electronic cash transfer and digital financial inclusion in the Philippines. The paper looks at the barriers it faced and how its efforts to overcome these challenges "brought about unintended consequences that opened up new opportunities to do development differently and better".

  In 2016, Oxfam, the financial services firm Visa Inc., and PayMaya, a mobile money and payments company in the Philippines, developed a product that aims to "combine savings, credit, micro-insurance, and financial literacy in one single electronic platform".

  In efforts to scale up financial inclusion and following much collaborative work between Oxfam and PayMaya "trying and failing and trying again", the Inclusive and Affordable Financial Facilities for Developed and Resilient Filipinos (iAFFORD), was launched, and was later endorsed by the Bangko Sentral ng Pilipinas. Oxfam has deployed iAFFORD in a number of emergencies, including in its humanitarian response to the Marawi crisis. The author also notes how Oxfam's experience and learning highlights the "opportunities of cash as an approach to meeting the diverse needs of people affected by crisis, especially of women and minority groups, who often find themselves disadvantaged by gender-blind development and humanitarian aid".

Case study 2: The use of drones in humanitarian action

- We Robotics: The Power of local

  We Robotics co-created and supports an "inclusive network of independent, locally-led and demand-driven knowledge hubs" across Africa, Asia, Latin America, and other regions; the so-called 'Flying Labs' network. Its role is to strengthen capacity and to facilitate a local ecosystem for drones, robotics, data and AI solutions through projects and partnerships with local stakeholders, with all activities tied to one or several SDGs. Further, by joining and being part of the network, users agree to openly share their experiences and knowledge with other Flying Labs.

  We Robotics mission is to "shift power to local experts with local knowledge and lived experience to create the leadership opportunities they seek to implement solutions in the pursuit of positive social impact". They seek to achieve this through creating "replicable models that can be adapted and adopted by other organisations who want to localise and scale their activities in an inclusive manner".

- Swoop Aero

  Swoop Aero is an Australian start up drone logistics company that "aims to provide a technology platform for sustainable, reliable, and scalable drone logistics". It works to integrate several modes of transport to enable two-way deliveries across multiple destinations, organisations, and providers. Its services range from emerging supply chain and medical drone transport services, through to contactless drone deliveries and rapid humanitarian aid and disaster relief during complex disasters and emergencies.

Case study 3: Technologies developing digital identity tools

- Trust Alliance (June 2019). In 2019, a group of non-profit, academic and technology organisations came together with the aim to develop a "useful and ethical identity ecosystem with the regulatory and technology infrastructure in place to enable it", which would give people better access to help when they need it, and create greater self-agency and voice for those who are vulnerable or part of marginalised communities. The Trust Alliance focuses on producing the organisational governance and technical guidelines for how decentralised credentials should be implemented, and has developed a tool to verify digital credentials so that organisations can deploy humanitarian workers and volunteers rapidly and safely in responding to crisis.

- Traverse, an initiative of *Humanitech* from the Australian Red Cross, has developed a digital wallet that utilises blockchain technology, with

the aim for individuals to easily store, access and share credentials like Police Checks, Working with Children Checks, and other personal information more easily, empowering people to own and easily share their skills and experience, and making it easier to volunteer, study and work.

- Kiva Protocol: Building the credit bureau of the future is a relatively new initiative that seeks to give those who do not have a bank account a verifiable digital identity and more security over their credit information. This is a worldwide issue with over 1.7 billion people 'unbanked', including 80% of the citizens of Sierra Leone. In 2018, Kiva Protocol, Sierra Leone and UN agencies initiated the rollout of a nationwide digital identification system, with the aim to support seven million Sierra Leoneans to access financial services using validated digital identification utilising distributed ledger technology.

- *Self-Sovereign Identity in a Globalized World: Credentials-Based Identity Systems as a Driver for Economic Inclusion* by Wang, F. & De Filippi, P. (Jan. 2020). This paper outlines key concepts and definitions regarding digital identity and looks at the gains and limitations of existing identity systems, in particular the use of newer technologies, such as blockchain and biometrics and its associated value add and challenges around information security. The paper also offers "an alternative approach to self-sovereign identity" based on a combination of technologies and types of information, emphasising Kiva's Protocol's identity system programme in Sierra Leone as one of its case studies.

Case study 4: Field Ready—Humanitarian aid supplies made in the field

Field Ready aims to "meet humanitarian and reconstruction aid needs by transforming logistics through technology and design", and to "make useful items where they are needed to solve problems locally". With support from the Humanitarian Innovation Fund, Field Ready has been pioneering 3D Printing (3DP) in disaster relief, emphasising the importance of "making and testing designs closely with the people who will use them". This includes relevant community and relief workers of affected populations who may come into contact with the use of the product or item within the course of a localised response. For example, in Nepal, one year after a devastating series of earthquakes in the country, Field Ready worked closely with local workers in using a 3D printer to aid hospitals in remote areas that had broken medical equipment. In Haiti and Nepal, Field Ready trained a number of aid workers and local partners in the maintenance and use of 3D printing technology. In working closely with end users, this approach also reduces the risk of over-investing in unsuitable approaches or prioritising issues that are not main concerns in the local context.

Field Ready is also partnering with organisations and initiatives such as the ICRC's 'RedLabs', and with World Vision and Refugee Open Ware to "create innovation labs" and other such endeavours to best respond to humanitarian needs. Field Ready has also developed a range of resources and learning materials around the use of technologies in the humanitarian contexts. See this article for more details, and here for the resources and tools.

Useful resources

Research, reports & policy papers:

• *Humanitarian Innovation: The next step for greater impact*, The Humanitarian Leader, Wilde J. & McClure D. (July 2021). In this working paper, the authors note that while technology innovation has had some impact the aid sector is "trying to overcome the small innovation trap" and "struggling to scale what works". The paper looks at the barriers, challenges, and opportunities for how "system innovation can support humanitarians to take the next step to innovation effectiveness, to create real impact in communities".

• *From digital promise to frontline practice: new and emerging technologies in humanitarian action* UN OCHA. (April 2021). This study looks at the challenges, opportunities and "enablers for the adoption of new and emerging technologies in humanitarian action", and offers several recommendations for humanitarian actors working to implement projects, programmes or policies that have a technological element.

• *Innovation for Localisation: Exploring the Impact of Channelling Unrestricted Funding to NNGOs in Emergency Contexts*, Save the Children Denmark (Feb. 2021). Save the Children Denmark, in partnership with Street Child, conducted a pilot study that randomly selected six local/national non-government organisations (L/NNGOs) to implement unrestricted grants up to USD$15,000. The study was aimed at "improving knowledge and the evidence base for how L/NNGOs use unrestricted funds when available" and draws on the learnings from the pilot to share recommendations to donors for funding L/NNGOs.

• *COVID-19 and digital humanitarian action: Trends, risks, and the path forward*, Mobile for Humanitarian Innovation programme, Global System for Mobile Communications (GSMC) (Feb. 2021). This report explores how partners and grantees through its Humanitarian Innovation Programme during the pandemic have "shifted and maintained their services in humanitarian contexts" using mobile technologies, with a particular focus on smaller mobile network operators and their engagement in the programme.

• *The impact of 3D printing on the humanitarian supply chain*, Production Planning & Control, Corsini, L, Aranda-Jan C B, & Moultrie J. (2020). This study examines the impact of 3D printing on the humanitarian supply chain and outlines the comparative advantages and challenges of using four key supply chain archetypes developed through their analysis. The authors contend that "3D printing will not necessarily simplify and shorten the supply chain", and emphasise "the need for a holistic supply chain approach", which involves "the local production of 3D printers and filament, alongside local design and manufacture".

• *Technological innovation for humanitarian aid and assistance*, European Parliamentary Research Service, Scientific Foresight Unit, European Parliament (May 2019). This study provides an overview of the current developments regarding "ICT-related innovation in humanitarian assistance". It outlines several concerns and opportunities in the use of these innovations and offers a set of policy options with the aim of helping to "further technological innovation in humanitarian assistance".

• *The Next Generation Humanitarian Distributed Platform*, Danish Red Cross, Mercy Corps & hive online, Blakstad, S, Melkun, C, & Shreves, R. (2020). This report looks at how humanitarian blockchain and Distributed Ledger Technology (DLT) is currently being used in the humanitarian sector, the benefits and challenges found in implementing and using such technologies and concludes with recommendations for future design and implementation based on research findings.

• *The humanitarian 'digital divide'*, HPG Working Paper, Willitts-King, B. Bryant, J. & Holloway, K. (Nov. 2019). This research paper considers both the "opportunities and risks of employing digital technology in humanitarian response, particularly through local technology solutions". The paper assesses the "impact these approaches have had on furthering or limiting inclusion", as well as approaches to use and adapt these tools in the most effective and impartial ways.

• *The humanitarian metadata problem: 'Doing no harm in the digital era'*, ICRC (Oct. 2018). This paper seeks to build understanding of what types of new technologies are being used in humanitarian action and outlines some of the risks involved in the use of certain new technologies. It also looks at how these technologies intersect with the 'do no harm' principle in a digital environment and where the use of surveillance "may obstruct or threaten the neutral, impartial and independent nature of humanitarian action".

• Now is the time to deliver: Looking for humanitarian innovation's theory of change, Sandvik, K B. *Journal of International Humanitarian Action* 2(1) (2017). This review article seeks to better understand the expectations around "humanitarian innovation as a theory of change" and responds to the question: "exactly what do actors in the humanitarian sector expect innovation to deliver, how, and why does it matter?"

• The Rise of the Humanitarian Drone: Giving Content to an Emerging Concept, Sandvik, K B & Kjersti L. *Millennium-Journal of International Studies* 43.1 (2014): 145-164. In this article, the authors critically examine "the concept of the humanitarian drone", looking at its journey "from the global battlespace to the humanitarian emergency zone", and reflecting on "the ways in which military practices and rationales guiding drone deployment may also shape humanitarian use".

Conceptual frameworks, guides, resources & practical tools:

• *Integration of Internet-of-Things with Blockchain Technology to Enhance Humanitarian Logistics Performance*, Khan, M, Imitiaz, S, Parvaiz, G S, & Bae, J. (2021). With the implementation of IoT and blockchain technology gaining increased interest in humanitarian logistics, this study proposes a study framework for improving "transparency, public trust, and coordination in humanitarian logistics" through the "integration of IoT with BCT". The authors conclude that "transparency plays a crucial role in enhancing public trust, coordination, and ultimately humanitarian logistics performance through the integration of IoT with BCT".

• Promoting digital humanitarian action in protecting human rights: Hope or hype? *Journal of Humanitarian Action*, 5(6), Akhamatova, D M, & Akhamatova, M S. (2020). Looking at the themes of human rights, freedoms, and dignity protection in the humanitarian sector, this paper explores the experiences of actors working in humanitarian action, and draws out lessons from decision-making, both past and present, in efforts to "fundamentally update and adapt humanitarian assistance" while at the same time, "protecting its fundamental principles".

• The potential of emergent disruptive technologies for humanitarian supply chains: the integration of blockchain, AI and 3D printing, Rodríguez-Espíndola, O, Chowdhury, S, Beltagui, A, & Albores, P. (Dec. 2018). *International Journal of Production Research*, 58(15): 4610-4630. This article argues that "the integration of different technologies is essential to deliver real benefits to the humanitarian supply chain". The authors propose a framework of integrating three emergent disruptive technologies (AI, Blockchain and 3D Printing) to strengthen "the flow of information, products and financial resources in humanitarian supply chains", and outlines the potential benefits of using this approach.

Other interesting reads:

• Humanitech Summit (May 2021), was a two-day exploration of key issues at the intersection of humanity and technology, with leading thinkers and practitioners exploring a 'humanity first' approach to emerging technology in the three focus areas of: Emergencies & Disasters, Climate and Equity and Justice.

• *How to use social media for crisis communications and emergency management.* This blogpost provides a guide for social media crisis communication and social media best practices during a crisis or emergency.

• COVID-19 and its impact on digital humanitarian action blog series, GSMA M4H:
  - COVID-19 and digital humanitarian action: Three early lessons (Feb. 2021)
  - COVID-19 and the future of digital humanitarian action: Advice from the experts (Mar. 2021)

• *Digital Humanitarians: How Big Data is changing the face of humanitarian response*, CRC Press, Meier, P. (2015). This book chronicles the "sudden and spectacular rise of Digital Humanitarians". The author does this by sharing humanitarian actors' real-life experiences and stories to highlight "how their humanity coupled with innovative solutions to Big Data is changing humanitarian response forever" and encourages readers to "think differently about what it means to be humanitarian".

Podcasts, conversations & emerging platforms:

• *A COVID Vaccine Certificate: Building on Lessons from Digital ID for the Digital Yellow Card.* Center for Global Development, Gelb, A, & Mukherjee, A. (Feb. 2021). This article looks at several different initiatives underway to develop "COVID-19 vaccination tracking systems", which outlines concerns around "the inequity in COVID-19 vaccination across rich and poor countries, communities, and people". It also discusses how a digital tracking system should be "inclusive in its design and governance to ensure that it does not widen the digital divide".

• Technology and Humanitarian Action: From Digital Promise to Frontline Practice, at this event (co-hosted by UN OCHA and the Netherlands) speakers discussed the "promises and pitfalls of new technologies".

• Atma Connect: Neighbours helping neighbours is a non-profit technology company that aims to build resilience in vulnerable communities and improve access to basic needs in an emergency through creating solutions that empower users.
  - AtmaGo is a free mobile-friendly website launched by the company in Indonesia and Puerto Rico allowing users to "report problems, discuss solutions, share events, and find jobs", and in select locations "receive emergency alerts to help them respond to and recover from floods and other disasters".

In the spotlight: Networks & Forums to follow on Twitter

• DigitHarium, is a "global forum to discuss and debate digital transformation within the humanitarian sector, with a focus on humanitarian protection, policy, ethics, and action": @DigitHarium

• Global Alliance for Humanitarian Innovation (GAHI), "connects, mobilizes, and amplifies, enabling the humanitarian system to do more at less cost": @GAHInnovation

• Humanitarian OpenStreetMap Team is a group "dedicated to humanitarian action and community development through open mapping": @hotosm

• Humanitech "is a think+do tank which seeks to shape the future for all humanity by harnessing the power of technology for good": @humanitech_au

• Solferino Academy, IFRC seeks "to help anticipate, understand, and adapt to trends and emerging issues": @IFRCInnovation

• The Signal Code aims to "advance the safe, ethical, and effective use of data and tech. during humanitarian and human rights crisis": @SignalCode

• We Robotics, seeks to promote "the Power of Local" and to "shift power to local experts and organisations" across the sector including through its http://FlyingLabs.org program: @WeRobotics

CENTRE FOR HUMANITARIAN LEADERSHIP

Rights CoLAB

This project was developed in partnership with the RINGO Project, hosted by Rights CoLab. Many thanks to the IKEA Foundation for supporting the initiative.

The RINGO Project is a systems change initiative that seeks to transform global civil society to respond to today's challenges, aimed at reimagining the role of the international non-governmental organisation.

As a part of the project, this thematic series maps various initiatives under key areas that cover decolonisation, finance and funding models, technology, leadership, ways of working, partnerships, and business operating models.

The purpose of this resource is for the use of practitioners in keeping up to date with the evolving discussions in this area, and promoting greater awareness of actions, knowledge-sharing, and collaboration among humanitarian actors of the role of INGOs in spearheading, facilitating, or supporting change in the sector.

The Centre for Humanitarian Leadership is an innovative collaboration between Deakin University and Save the Children that combines good humanitarian practice with academic rigour. Our mission is to lead and influence change within the humanitarian system through critical analysis, transformational and disruptive education and research, and meaningful contributions to policy and practice.

Rights CoLab is an open platform for facilitating collaborative efforts to advance human rights, among experts with diverse perspectives in the fields of civil society, technology, business and finance.

Photos:
Mustafa Hassan Abdillahi / Save the Children and Sierra Leone Country Office / Save the Children