A Decade Later: Reflecting on Disaster Relief 2.0

June 2022

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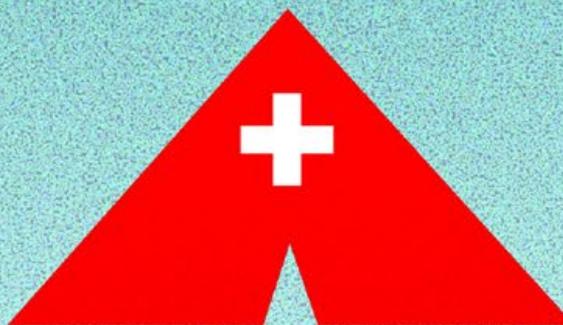by Kristen Pearn, Sarah A Jabbar, and Andrej Verity
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A Decade Later: Reflecting on Disaster Relief 2.0

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Foreword

When reflecting on the 2011 Disaster Relief 2.0 report and our conversations with all those involved, it is important to first contextualize the report within the time it was written.

At the time of its publication, efforts were being made across the humanitarian sector to centralize disaster relief responses. The authors sought to explore the existing interface (or lack thereof) between traditional humanitarian organizations, such as the UN Office for the Coordination of Humanitarian Affairs (UNOCHA), and the digital humanitarian community* (DHC) in order to describe it and offer recommendations for improvement.
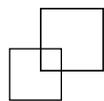
The original scope of this report did not include local voices. As the work got under way, there was a clear desire to extend the scope in this regard, and the authors made several outreach attempts. Although a few interviews were conducted with Haitians involved in the 2010 response, the authors do not feel they can adequately claim that local voices were thoroughly included in the report.

Humanitarian needs have increased massively over the past decade, and most humanitarian operations today are due to human-made crises and in conflict zones. Also, Government and non-Government actors are much more actively limiting access to technology, connectivity and data. These larger trends were beyond the dimensions of this reflection report. The research and interviews were not controlled against these changes.

It should be noted that this report was researched and drafted prior to the earthquake that struck Haiti on 14 August 2021. Consideration should be given to conduct further research that compares the local Haitian capacity and humanitarian interface in the aftermath of the 2021 earthquake versus the 2010 earthquake.

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*Digital humanitarian community (DHC) is used in place of the 2011 report's term of Volunteer and Technical Community (V&TCs). This is to better reflect the nature of the community and its efforts.
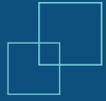
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Key Findings

◢ Several lessons and recommendations can be drawn from the past decade in the humanitarian sector. They include the need to engage with local actors; prepare for and identify potential gaps in humanitarian responses prior to a disaster or an emergency; facilitate adaptability across humanitarian organizations, people and culture; implement bolder data standards and security measures; avoid the hype cycles of new and emerging technologies and methods; observe burnout among humanitarian responders; and re-evaluate resource allocation.

◢ Many of the information management (IM) challenges facing the humanitarian sector a decade ago persist today. They include aggregating and analysing data inflows from digital humanitarians and affected populations and translating the data into actionable insights amid humanitarian crises.

◢ There is a broad range of perspectives within the humanitarian sector on what "best practices" for IM look like, but most interviewees agree that "best practices" involve building local and national capacity to manage data inflows.

◢ When reflecting on Disaster Relief 2.0, the consensus among the interviewees is that there could have been a greater focus on local representation, but the report does accurately represent a "snapshot in time".

◢ Investments in the IM domain have increased, but progress has been slow, incremental and varied across organizations.

◢ No formal interface exists between traditional humanitarian organizations and digital humanitarian networks, which has led to fragmented information streams.

◢ There have been instances of cross-sector collaboration, such as the Digital Humanitarian Network (DHN) and the Humanitarian Data Exchange (HDX).

◢ Data inflows from new actors have raised questions within the humanitarian sector about data ownership and responsible data use to ensure the protection and safety of the affected populations from which the data is being extracted.

◢ Some frameworks and partnership agreements have been established between traditional humanitarian organizations and digital humanitarian networks, but it is often difficult for traditional organizations to engage with digital humanitarians or local actors because of their organization structures.

◢ There are diverging opinions within the humanitarian sector on whether microtasking is useful and should be leveraged by traditional humanitarian organizations.

◢ There are concerns that the humanitarian sector has not directed sufficient resources to achieving Disaster Relief 2.0's recommendations, and that the donor model disincentivizes increased collaboration among organizations.

◢ Additional considerations within the humanitarian sector include the opportunities and risks associated with new and emerging technologies, the inflexibility and rigidity of the traditional humanitarian sector, and the increased importance of "localizing" disaster relief responses.

The Purpose
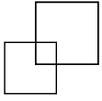
During the response to the 2010 Haiti earthquake, there was a large outpouring of volunteer-based digital support. This raised many questions and pointed at a bright future of digital humanitarians supporting disasters.

Disaster Relief 2.0 (DR2.0) was released in 2011, outlining the experience and several concrete recommendations on how to better integrate and maximize such digital humanitarian efforts.[1] A decade later, 2021 offered an interesting opportunity to reflect on the report and explore what happened. Were the recommendations implemented? Why? Why not? It is rare for our community to reflect over such a long time period. With DR2.0 being such a major "stake in the sand" type of report, it seemed appropriate to take the time to reflect and ask the hard questions.

Our intention for this reflection report was to keep a narrow scope by speaking to those who were involved in DR2.0 and give them an opportunity to reflect on how its various recommendations have (or have not) unfolded over the past decade. Where appropriate, we extended the interviewee list to ensure that organizations from the 2011 report could be represented. We also sought to extend the discussion to Haitian locals to ensure greater coverage and inclusivity, as well as the role technology has (or has not) played in rebuilding Haitian infrastructure and institutions in the past decade. Our hope was that by interviewing these individuals, we could provide a novel perspective of how the issues and recommendations covered in DR2.0 have evolved at the organization and programmatic level between 2011 and 2021.

Our research explored questions such as: What recommendations have been implemented? What recommendations have not? Why or why not? What lessons can be drawn from the past 10 years? What does this mean for the future of technology and the humanitarian sector in the next few years?

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1   Disaster Relief 2.0: https://reliefweb.int/report/world/disaster-relief-20-future-information-sharing-humanitarian-emergencies
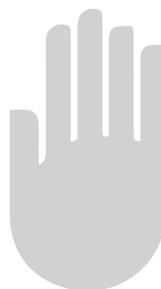
Research Methodology & Limitations
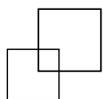
A comprehensive literature review was conducted to identify areas of development in the humanitarian sector as well as the status of various recommendations in DR2.0. We then created a thematic synthesis of the various recommendations in DR2.0, formulated questions based on this synthesis and discussed them in semi-structured interviews with 46 interviewees (see annex 1).

We reached out to nearly all the experts involved in making DR2.0, including the researchers, authors and interviewees. We connected with approximately 85 per cent of those experts and interviewed approximately 60 per cent. Since DR2.0's authors recognized that it could have been more inclusive, we also sought to extend the discussions to include other key individuals and organizations as well as Haitian experts to try to ensure greater coverage and inclusivity. We were able to interview two former Government officials, one DHC member and two members of Haitian NGOs.

The project period of three months resulted in 46 interviews, which covered some but not all reflections on DR2.0's recommendations. Expanding the interviewees beyond the original 2010 group aimed to incorporate additional perspectives potentially not included in the original report.
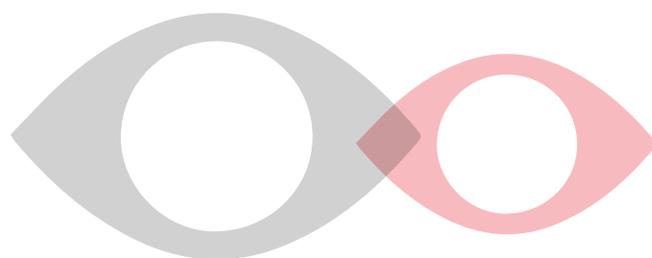
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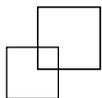
New Data Inflows & Information Management

DR2.0 largely focused on new data inflows from the DHC and the affected Haitian community, as well as the lack of existing interface between traditional humanitarian bodies and the DHC. DR2.0's introduction notes that "good communication is essential to effective coordination," and that "many institutions have made significant investments in information and communication technologies (ICTS)."[2]

Although significant investments were made in ICTS that allowed for the expansion of networks connecting humanitarians, this also resulted in an increase of data flowing in from different pathways. Responders were often ill-equipped to aggregate, analyse and extract the relevant elements from this new data that would be necessary to help make sense of the rapidly evolving crisis and meet urgent humanitarian needs.

Why were responders ill-prepared to manage data inflows? DR2.0 outlined the following reasons:

- Humanitarian field staff lacked the tools and absorptive capacity necessary to listen to the new flow of requests coming in from social media and the Haitian community.

- The humanitarian system had few protocols, procedures or policies governing the use of information generated through social media by Haitian locals, or for sharing that information with the digital volunteers.

- The digital volunteers were still learning how to best support the work of information managers and other programme staff in the humanitarian system (lack of interface).

- There was a lack of verified information, such as basic street-level maps for dispatching search-and-rescue teams.

- There were issues within the cluster system that affected the speed of IM, including structural issues, a lack of resources and delays.

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2   Harvard Humanitarian Initiative (2010). "Disaster relief 2.0: The future of information sharing in humanitarian emergencies." In Disaster Relief 2.0: The future of information sharing in humanitarian emergencies, p. 10.

Although a decade has passed since the release of DR2.0, it became evident during our research that many of the challenges facing traditional humanitarian organizations, such as aggregating and analysing large/new data inflows amid humanitarian disasters and emergencies, persist today.

This section of the report seeks to explore why certain IM-related challenges persist within the humanitarian sector, what measures the humanitarian sector has taken to address such challenges, and how the humanitarian community can continue to increase its absorptive capacity and efficiency when it comes to aggregating, analysing and plotting large volumes of data flowing in from different sources.

Data Inflows from Digital Humanitarians & Affected Populations

Data Inflows

During the Haiti response, two new data inflows were added to the humanitarian system: one from the DHC and one from the affected Haitian community.[3] The new data inflows were the result of the mobilization of digitally distributed volunteer networks and the rapid advances in information and communications technology, such as social media. Interviewees noted that organizations had employees with varying opinions, thus making it hard for some organizations to find a coherent position and move forward. Many of the traditional humanitarian organizations were curious about what the DHC could bring to the mix. They tried to leverage its crowdsourcing and crisis-mapping technologies with varying degrees of success, while other humanitarian organizations remained skeptical of, or even confused by, the DHC's capacity to assist in the relief effort.

Some responders who were involved in the relief effort and worked alongside the DHCs believed that the Haiti response was groundbreaking in that it pushed the traditional humanitarian system to integrate new data inflows and digital volunteers into future disaster responses, such as the 2015 Nepal earthquake.[4]

Though the Haiti response is often perceived as a 'flashpoint in time' within the humanitarian sector, many of the challenges that humanitarian responders faced persist today. Over the past decade, communications technology, mainly smartphone devices and social media platforms, have grown exponentially and democratized media participation, shifting the way people communicate during and after a disaster or an emergency. As the communications landscape continues to evolve rapidly, traditional humanitarian organizations have struggled to keep abreast with aggregating, analysing and gaining insights from the overwhelming amount of data flowing in from different pathways. The new data inflows raised questions within the traditional humanitarian community about how to communicate with and obtain consent from the affected communities, how to professionalize and standardize data management processes, and how to translate data into actionable insights.

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3   Harvard Humanitarian Initiative (2010). "Disaster relief 2.0: The future of information sharing in humanitarian emergencies." In Disaster Relief 2.0: The future of information sharing in humanitarian emergencies, p. 19.

4   Interview with Dennis King, 19 May 2021.

Some interviewees noted that to understand the new data inflows, the traditional humanitarian community has invested in more IM and data-literacy capacity.

Despite increased investments, many interviewees believe that it is still very much a rigid one-size-fits-all approach, and that more work needs to be done to manage the fragmented data inflows and translate them into actionable insights in localized contexts.

> *One of the challenges that I am not entirely convinced by is whether humanitarian actors today are any better at determining, making sense of and analysing rich textures of information, not necessarily the result of a disaster, and is exponentially greater than a decade ago.*
>
> **— Sanjana Hattotuwa**

Information Management in the Traditional Humanitarian Sector

IM represents a broad practice that is difficult to summarize in a few short paragraphs. However, one interviewee described it as "getting the right information to the right people at the right time." We feel this is a fitting definition for the purpose of this reflection report.[5]

Since the Haiti response, the humanitarian community has paid increasing attention to the importance of good IM practices and evidence-based decision-making to drive effective responses. One example is the increased investments in data-management experts, resources and capacity-building. While many interviewees acknowledged that there has been a maturation in terms of how the extracted data is being thought about and shared, they maintained that the humanitarian community needs to be more transparent about what questions it wants answers to, what the data is being used for and how it can empower local actors.

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5   Aiim. (n.d.). What is Information Management? Retrieved 12 August 2021, from
     https://www.aiim.org/what-is-information-management

> *We need to first figure out what questions we are looking for answers for, and then figure out how to address them and what role technology could play, if any. When we design technology-led solutions without understanding the real problems and the capacities local people have, technology can then become a distraction.*
>
> **— Jacobo Quintanilla**

The consensus among interviewees was that the humanitarian system is now capable of handling more data than it could in 2010. Various factors have led to this improved data-absorption capacity, from technology advancements, including artificial intelligence (AI), to increased investments in IM capacity to data standards and sharing agreements. Yet the system is still overwhelmed by the sheer volume of data flowing in from different pathways.

Process-oriented and technological advancements have enabled organizations within the humanitarian space to develop a better understanding of the roles and responsibilities of all actors involved during a crisis, ultimately leading to a more organized response effort. Despite increased organization and collaboration, the issue of information fragmentation persists today. This is partly because of the traditional humanitarian community's bureaucratic nature and its cluster system, and partly because of the fragmented nature of social media platforms.

Despite the significant advances made in the domain of IM since the Haiti response, some interviewees believe that the humanitarian sector has not dedicated sufficient funding and resources towards improving IM's capabilities. Unrealistic expectations, outdated IM practices, new actors, heightened data-sensitivity concerns and increased cybersecurity threats all seem to hinder the sector's ability to advance its IM capabilities. And these do not cover the opportunity for more inclusivity in terms of engaging with and empowering affected populations.

> **"** *The amount of stuff handled on Excel sheets is still pretty high... We still report too many things in PDF docs, which are fine for individual human readers but don't work at all as something that is meant to be machine-automated.* **"**
>
> — **Andrew Schroeder**

There was a sector-wide understanding of the need for improved IM practices, but any progress has been far too slow and siloed for four reasons:

1. Humanitarian organizations lack the understanding of and professionalized standards for using digital technologies to enable data extraction and collection. Some interviewees asserted that humanitarian organizations need to put more emphasis on digital transformation systems, as every country is on its own digital transformation journey in terms of its level of technological literacy and access and requires humanitarians to customize their responses accordingly.

2. Humanitarians can be very extractive with their data. If they do not involve the local population in data processing and give them some degree of digital agency, the sector can leave them less empowered than they were before (for more details on localization, see the "Lessons Learned" section).

3. There is a persistent lack of awareness of how to manage the sheer volume of data flowing in from different pathways and how to make use of it amid a response.

4. Without regulation or oversight, a built-in reluctance to work together persists. Unfortunately, such an environment greatly slows the ability to agree on and begin using such standards.

To effectively manage the sheer volume of data being extracted from the new data inflows (digital humanitarians, social media and the affected populations), the humanitarian sector must make significant investments in various IM disciplines, ranging from partnerships to data ingestion/manipulation to product alignment to translation and to IM personnel.

Traditional Humanitarian Sector vs. Digital Humanitarians

Adding to the complexity of IM, the traditional humanitarian sector and the DHCs have not done enough to integrate their efforts. There has been great collaboration at times, but interviewees noted that each often created their own fragmented information streams and that they operated in parallel rather than in tandem with each other. An oft-cited reason for this is the cluster approach, which assigns a lead agency inside each thematic cluster to coordinate aid provision in a designated area.[6] According to some interviewees, the cluster approach has helped create a sense of predictability in terms of what agencies will be responsible for, but also inflexibility in terms of integrating informal networks, emerging technologies and local voices into the broader international relief effort.

The bureaucratic and inflexible nature of many organizations has made it difficult to welcome new actors and digital humanitarians, who have independent missions that do not always align with, or are subservient to, the traditional humanitarian sector. This is especially true when new actors have very little organization structure and have not yet established a relationship of trust.

Without a formal organization structure and by leveraging innovation technologies and approaches, the DHCs challenged the status quo within the traditional humanitarian sector in 2010.[7] According to several interviewees, some of the traditional humanitarian organizations hired digital humanitarians or attempted to integrate them into their workflows to drive more effective disaster relief response. However, this approach simply meant that the organizations were pushing off the challenge and did not adapt themselves to accommodate these new actors and solutions in the longer term. Without the institutional support of and funding from traditional humanitarian organizations or large donors, many digital humanitarian networks struggled to maintain their operational capacity over time. In the years since the Haiti response, these challenges have impeded the ability of the traditional humanitarian system and the DHCs to establish a formal interface (a means of clarifying each actor's role in the relief effort, preventing the duplication of relief efforts and averting risks of information fragmentation) for information exchange or appropriate data standards and protections.

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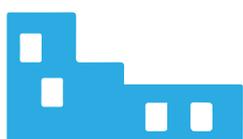
6   Harvard Humanitarian Initiative (2010). "Disaster relief 2.0: The future of information sharing in humanitarian emergencies." In Disaster Relief 2.0: The future of information sharing in humanitarian emergencies, p. 20.

7   "Disaster Relief 2.0: The Future of Information Sharing in Humanitarian Emergencies," p. 9.

> **❝** *Humans like to seek control in chaotic situations such as disasters, and I suspect that's why so many of us jump at the task of organizing information. The challenge is that when so many individuals or small groups want to control their own way of gathering and using data, it's not actionable to other groups, including larger humanitarian operations. Data interoperability is the lynchpin of coordination, and without it established operational organizations and V&TCs [DHCs] can become almost adversaries instead of collaborators.* **❞**

— **Wendy Harman**

Cross-Sector Collaboration

Despite these obstacles, UNOCHA made efforts, leveraging support from ICT4Peace[8], to form the <u>Digital Humanitarian Network (DHN)</u> — a consortium that enables digital humanitarians to interface with traditional humanitarian organizations.

Andrej Verity and Patrick Meier co-founded DHN in 2012 to help bring DHCs and traditional humanitarian organizations together to collaborate and foster bilateral partnerships that could be leveraged at the onset of a humanitarian disaster or emergency.

Over the past decade, DHN has served its intended purpose, as many of the digital humanitarian networks have formalized and solidified partnerships with traditional humanitarian organizations. According to one of DHN's co-founders, a benefit that emerged from these partnerships was that many of the traditional humanitarian organizations that did not accept the use of modern technologies, such as Slack, Skype, Dropbox and Google Docs, were introduced to these technologies and new ways of working by the digital humanitarian networks. This exposure helped highlight to middle management that these modern technologies can improve the efficiency of their workflows.

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8   For more examples and details on ICT4Peace's contribution in its space, see its 2012 year-end report: https://ict4peace.org/activities/2012-year-in-review-and-activity-report/

> *My impression at the time was that we had to come together in a room - physically sitting in a room - for the first time to establish and understand what we were trying to do. And we knew that trust with a small team - organizational trust - is so fundamental to get any form of coordination, and that had to be the starting point. The Digital Humanitarian Network was really a way to do that.*
>
> **— Nigel Woof**

DHN proved to be an effective model of collaboration between digital humanitarians and formal international organizations, and it helped introduce modern technologies into humanitarian workflows. However, the initiative was largely underresourced. Without sufficient resources to pay full-time staff, DHN's collaboration model was unsustainable.

> *There is space for something like the DHN to exist, but it would have to be a resourced entity, which would need to be familiar with both traditional and long-term established digital humanitarian networks. It would have to be well-positioned to gauge new digital humanitarian networks that are set up and figure out ways to engage them. I suspect that they could play a significant role in the coordination of digital humanitarian response.*
>
> **— DHN Co-founder Andrej Verity**

In addition to DHN, UNOCHA established the Centre for Humanitarian Data, which launched the Humanitarian Data Exchange (HDX) in 2014. With the support of ICT4Peace,[9] the Humanitarian Exchange Language (HXL) was launched in 2016. These initiatives have enabled data sharing across 160 UN agencies, NGOs and Governments to radically improve information sharing and coordination during crises.[10]

Given the DHN and HDX initiatives, some interviewees asserted that the humanitarian sector is on the cusp of seeing a real surge in data sharing as a public good, especially once it marries what it has in the public sector with the private sector.

> *We need to be able to use technology to share information and communicate in a way that involves all parties, especially the communities you want to help. If we come together in perfect harmony, it will be good for humanity. There is a good future if we all collaborate.*
>
> **— Jacqueline Oriscar Lee**

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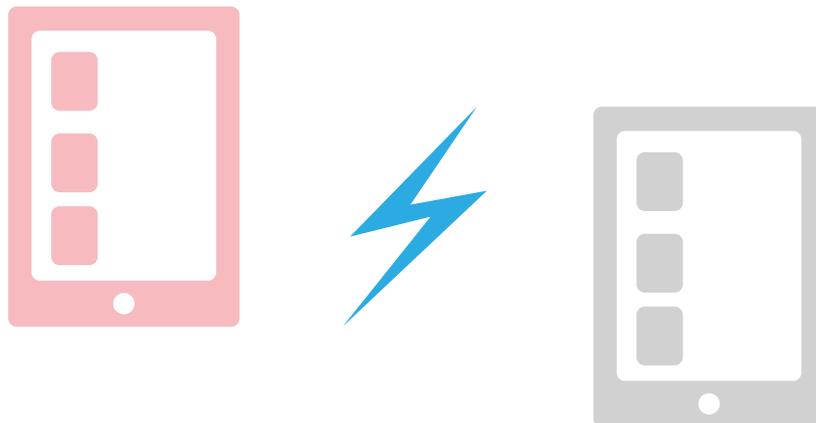
9   For more details on ICT4Peace's support to HXL, see:
    https://ict4peace.org/activities/welcoming-hxl-version-1-0-a-breakthrough-in-humanitarian-information-exchange/

10 "Humanitarian Data Exchange (HDX)," Global Innovation Exchange (26 June 2020), accessed on 9 August 2021,
    https://www.globalinnovationexchange.org/innovation/humanitarian-data-exchange-hdx

Best Practices for Information Management

It is impossible to narrow down the best practices for IM to a few paragraphs. However, it is worth sharing the interviewees' perspectives on the matter and their varying views on what those practices look like, with the hopes of further expanding the discourse on IM.

> " *I think it would be wrong to think that the humanitarian sector has achieved best practices. If we think we have, we stop trying. There are no best practices, only good practices.* "
>
> — DHN Co-founder Andrej Verity

Most interviewees emphasized that best practices for IM stress the importance of preparedness at their core. In practical terms, best practices must include a clear understanding of the data system in place; outline the common methodological approaches used; enforce a focus on communication and clarification of roles and principles; and articulate data-exchange protocols and standards before an emergency.[11] If organizations invest in setting these practices and systems in place, it allows for some semblance of norms that enable more predictable workflows and a better understanding of the information flow during the response.[12]

Preparation is key. This is especially necessary with the emergence of new actors who need to work around the same data sets. Some suggested that the humanitarian sector must set general rather than rigid standards for IM and adjust whenever needed. If procedures are hardwired, it makes inquiry into the unique elements of each disaster less likely to escape a bureaucratic mindset, thus missing opportunities and innovation.

Finally, many agree that to define best practices, humanitarian organizations must focus on meticulously studying their failures rather than focusing solely on their successful missions.[13]

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11   Interview with Oliver Lacey-Hall, 24 May 2021; Andrew Alspach, 26 May 2021; Suha Ulgen, 3 June 2021.
12   Interview with Andrew Alspach, 26 May 2021.
13   Interview with Jeffrey Villaveces, 19 May 2021.

DR2.0 noted: "The coordination of data and its translation into decision-making—information management—is different from building the communication pathways via which those data are able to flow."[14] Regarding the data itself, there is a greater understanding of the strengths and limitations of the data set, as well as an understanding of the flow of data itself, where it comes from, how it is processed and distributed, and which protocols to follow. According to the interviewees, protocols must clearly include who has access to the data and identify whether access to data changes during emergencies should include other actors whose input is valuable to the disaster response.

Since most humanitarians work with unstructured or semi-structured data, best practices could also be about creating a clear path for how unstructured data fits into the operations on the ground and into our situational awareness. Since the overall objective is to make good decisions with the data, it is critical for organizations to take time to agree on what information is required and what constitutes actionable data.

Beyond IM's data collection and extraction aspect, some claim that best practices must include a change of focus and include all actors involved in data collection, most notably the local communities. The past decade witnessed the rise of localization and reinforced the power of local communities' engagement. In fact, the situation has shifted recently, and now some communities have the technological capabilities to organize themselves during a disaster. Best practices for traditional humanitarian organizations should shift their focus towards local actors' capacity to effectively respond, leverage their technological capacity and integrate international actors into the locally led disaster response. As an added bonus, this approach would contribute to reducing the digital divide between humanitarians and local communities.

With the risks of information becoming more apparent over the years, best practices must include training on data responsibility, especially regarding how data could be used against a population if accessed by malicious actors. With that being said, there are two primary concerns with training modules for data/IM. First, the data landscape is evolving rapidly, which means training sessions can become outdated quickly. Second, organizations lack the necessary funding to host these critical seminars or to send their workforce to attend them. Shifting these trainings and workshops online can help provide the flexibility needed while adding a larger geographical reach and lowering costs.

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14   "Disaster Relief 2.0: The Future of Information Sharing in Humanitarian Emergencies," p. 31

> *If the pandemic has taught us anything, it is that an enormous amount of business can be done online. Running simulations of disaster response is most certainly one of them. Having GIS-based directories of key agencies, staff, assets and the like and making sure those are all in the cloud are some of the basic preparations for simulations and disasters themselves.*
>
> **— David Aylward**

The most important element is making the training scalable and repeatable, especially if we want to include the large groups of digital volunteers. On the other hand, there are strong beliefs that the training's real focus needs to be at a local level. As a long-term investment, the development and humanitarian sectors should invest in training the local communities in disaster-prone areas, with an aim to create a more sustainable response model instead of using limited resources to fly in experts and volunteers.

Digital Humanitarian Community & IM Best Practices

With best practices, there is no one-size-fits-all approach. The best practices of UNOCHA and other formal humanitarian organizations will look different compared to the DHC and smaller NGOs. Many reiterated the need for DHCs to learn the humanitarian system's data practices. Otherwise, there are concerns that DHCs simply consume too many resources and lack the appropriate knowledge to create value. The traditional humanitarian sector must engage with the DHC in training sessions around the sector's data-management practices.

Any conversation about IM and best practices must have space to include all stakeholders, including the DHC and, more importantly, local communities and responders.

Ownership of Data/Data Privacy Issues

The data inflows from new actors (mainly the affected populations on social media platforms and the DHC) during the Haiti response have since raised questions about data ownership and responsible data practices in the humanitarian sector. According to some interviewees, the information technology landscape since the Haiti response has consolidated around tech giants and their communications services, such as Facebook and Twitter. With the coalescence of tech giants and their communications services, many affected populations have turned to these services to get their messages out during an emergency, in turn becoming a rich source of data for these companies. As Emerson Tan noted, "*there is a sharp diversification between the tech haves and have nots. In the poor world, the data is all owned by the tech giants, and they are often reluctant to share this data*" with the humanitarian sector because it would reveal how much sensitive data they have accumulated, and humanitarian goals are not *"part of their core mission."*

Humanitarian organizations also extract information about affected populations through SMS messaging, mobile location data and social media platforms. As humanitarian organizations extrapolate data to answer specific questions and coordinate effective humanitarian responses, similar questions of data ownership and ethics have arisen. As many interviewees noted, the data sets extrapolated to answer specific questions about the response are often misapplied to other areas of the relief effort. Interviewees also stated that humanitarian organizations would often use this data to inform their decision-making without involving the affected population.

> *The decisions you (humanitarian organizations) are making with the data you are extracting, who are they affecting? And are those people even involved in the decision-making process? Do we ever get back to the local community and tell them what we did with their data?*
>
> **— Heather Leson**

Since the Haiti response, there has been an increasing need among humanitarian organizations to share more information as well as gain access to emerging data sets, such as feedback and perceptions data. To address this need, the humanitarian sector established HDX—a central repository for open humanitarian data—to streamline the fragmented data flow and help organizations develop more nuanced needs assessments of the affected populations and humanitarian response.[15] The drive towards open data and data-sharing initiatives has been

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15   John Warnes. "Using data to make your humanitarian organization more client-focused." UNHCR. Accessed on 22 July 2021, https://www.unhcr.org/innovation/using-data-to-make-your-humanitarian-organisation-more-client-focused/

accompanied by a recognition of the importance of data-responsibility protocols to protect affected populations' sensitive data that could enable authoritarian regimes or malevolent actors to identify and track individuals or groups.

Some interviewees asserted that the humanitarian sector has invested in the technological tools and software to collect data, but it has not invested sufficiently in training to use the tools or manage the collected data responsibility. Other interviewees noted that for the most part, formal humanitarian organizations have adopted good private information processing practices and policies, such as the "Do No Harm" policy, but that many informal humanitarian networks continue to rely on non-secure systems, which are susceptible to data leaks and breaches.

> *It is part of a broken model that harms people when we get non-professionals to handle sensitive data, because they don't have the expertise in information management or disaster response.*
>
> — **Robert Monarch**

> *The security around data right now is built around the idea of what we can limit people from doing, rather than what we can allow people to do safely, recognizing that communities are active digital information consumers and producers.*
>
> — **Anahi Ayala Iacucci**

Recent news reports about a private Israeli firm releasing military-grade surveillance technology to authoritarian Governments to hack the cellphones of journalists, activists and policymakers worldwide[16] gives cause for concern. However, not all interviewees shared the same sentiment about non-professionals and the DHC. Some believed that traditional humanitarian organizations should not rule out the DHCs, but rather engage in more conversations about data privacy and security with the DHCs and affected populations, establish digital forensic teams and partnerships, and assist with digital humanitarian capacity-building to ensure that sensitive data does not fall into the wrong hands.

> **"** *Victims of disaster responses are the most vulnerable, and there are countless examples of people being preyed on for political reasons, trafficking, etc., and it is typically on the back of data that should have been private that became public without the permission of those people whose data it is.* **"**

— **Robert Monarch**

Frameworks, Partnership Agreements, Capacity-Building between Humanitarian Organizations and Digital Humanitarians

DR2.0 suggested that establishing frameworks and partnership agreements could be one solution to several of the issues between the formal humanitarian sector and the DHC. Humanitarian response is a coordination effort, so data sharing is imperative.

Frameworks

Frameworks are useful as they increase effectiveness and save valuable time, especially during a humanitarian crisis. Interviewees were aware of frameworks around ethics and privacy, but they were not aware of a more integrated approach for utilizing frameworks. Some think that using frameworks is not as important as investing in the creation of a more physical structure for an emergency response team. In that way, everyone would know their role and responsibility prior to the emergency in a more practical sense, rather than interpreting a conceptual framework each time. It would also help other organizations, who wish to partner with or work alongside various groups, to identify who is in charge, who is responsible for what and who to contact. Many believe that approach would enhance inter-organizational communication.

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16   Dana Priest et al. "Private Israeli spyware used to hack cell phones of journalists, activists worldwide." The Washington Post (18 July 2021). Accessed on 22 July 2021, https://www.washingtonpost.com/investigations/interactive/2021/nso-spyware-pegasus-cellphones/

Partnership Agreements

> " *We tried to form partnerships, but it is difficult to form a partnership between a hierarchical organization and a loose group of volunteers.* "
>
> — Anahi Ayala Iacucci

The humanitarian sector has made significant strides in terms of establishing partnership agreements. The Haiti response forced both communities (the formal humanitarian sector and the DHC) to interact and become aware of each other's activities as well as their professional and cultural differences. Indeed, different levels of partnerships were established over time. Some agreements focused on the legal sense of roles and responsibilities between partners, while others focused on data-sharing agreements during the onset of a disaster. Some organizations are keen to form partnerships, while others seem willing to do so only during a humanitarian disaster, which, as the previous section mentions, risks the operation's overall success, as preparation is vital. With increased globalization and improved connectivity, geographic differences are not an obstacle for such partnership agreements to flourish.

For the formal humanitarian sector, it can be challenging to form a partnership with an informal organization. The volunteer community's unbureaucratic, unpredictable, dynamic and innovative culture makes it difficult for structured organizations to adapt and work with them. Many believed that the nature of the DHCs played a role in preventing partnerships coming to fruition with traditional humanitarian organizations.

By nature of design, DHCs often comprise informal organizations with a loose group of volunteers. One interviewee pointed out that DHCs without institutional structure often have a high turnover of leaders and volunteers, forcing formal humanitarian organizations to rebuild any relationship or partnership from scratch every time. Such repetition can lead to a lower desire to maintain a given partnership.

As one might expect, funding can also introduce challenges to the partnership equation. To maintain operations, DHCs generally require funding beyond their early stages, raising questions about long-term sustainability. Without ongoing funding, a DHC's operations become dependent on the occurrence of humanitarian disasters, which is usually when donors are active. If long-term funding is not secured, DHCs have to compete with each other to attain donors' attention.

It should be noted that not all partnerships need to be long-term engagements. When formed, they have often been project-based, and the formal partnership expires after a few weeks or months. Regardless of their time period, these types of partnerships build a strong foundation between the two organizations and increase the chances of future collaboration.

For the partnerships that did form, there were many success stories. One was DHN, mentioned earlier, which helped multiple organizations form partnerships by providing more accountability and trust for the DHCs. DHN is no longer active, but interviewees noted that this was due to a successful evolution of the humanitarian sector, where organizations no longer needed a mediator and could connect and interact effectively without it.

Despite the overwhelmingly positive opinions about partnerships, many interviewees were unaware of any agreements that occurred across the sector. They also raised questions about whether establishing formal partnerships is even a good idea. Many even suggested that the conversation and focus should be more about building partnerships with local actors than with DHCs.

Partnerships & the Local Communities

While it is not the intention of this reflection report to question the mandate or length of humanitarian engagement, we recognize that there was a wide array of opinions from the interviewees about what humanitarian engagement should look like. They claimed that without an agreed definition of what humanitarian engagement should look like, it is extremely difficult for digital humanitarians and local actors to form partnerships with international organizations. Some interviewees held the view that humanitarian aid is a Band-Aid solution to crises, and that humanitarian organizations should maintain a narrow focus on delivering medical aid, food and supplies, rather than trying to accomplish too many things on "forever missions" and achieving less-than-satisfactory results.[17]

Conversely, other interviewees claimed that although it is not necessarily the international humanitarian community's job to engage with local actors, they should break out of that mold and embed themselves in local institutions and organizations to get a clearer picture of local needs. It was contended that humanitarian organizations should be able to anticipate the nature of future humanitarian crises and begin this process of enabling and empowering local actors — commonly referred to as 'localization' — before those crises occur. Investing in preparation and localization before humanitarian crises occur would allow affected communities to lead responses and ensure their cultural differences are accounted for and their needs are met.

Former Haitian Government officials shared the perspective that localization should be a top priority among international humanitarian organizations. Mr. Jean Max Bellerive, the former Prime Minister of Haiti, emphasized the need for international organizations and NGOs to have conversations with local actors before coordinating a disaster response.

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17   Interview with Andrew Alspach, 26 May 2021.

He recalled that during the response in Haiti, humanitarian responders set up relief camps in Port-au-Prince, and that people in the camps told their families to come to these camps to receive medical aid, cash, food and supplies. Many people who flocked to these camps were reluctant to return to their former homes. Six months later, the humanitarian responders left the camps and aid supplies were cut off, but many locals remained with nowhere else to go.

In retrospect, Mr. Bellerive believes that it may have been more beneficial to direct the available resources towards achieving a more holistic humanitarian response that delivered aid to locals everywhere, rather than having a centralized response in Port-au-Prince and overwhelming the capital without a long-term solution. He added that he would have liked to see more humanitarian organizations and NGOs coordinate their efforts to achieve this holistic humanitarian response rather than fall into the common "flag syndrome" trap.

A second Haitian Government official concluded that it would have been more beneficial for humanitarian organizations and NGOs to coordinate with local actors, communicate with the public about the disaster relief response and reduce the chances of conflict or political instability (for more details, see the 'Lessons Learned: Localization' section).[18]

Capacity-Building

> *Capacity-building is useful, but it works both ways. Today's emphasis is largely around how local capacities can be strengthened. Reciprocally and as importantly, international humanitarian organizations, like OCHA and others, would benefit vastly from the study of grounded, community-based, sustainable and endogenous humanitarian responses, which, if adopted, adapted and amplified, can strengthen disaster resilience and response more generally.*
>
> — **Sanjana Hattotuwa**

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18   Interview with Jean Max Bellerive, 11 June 2021; Ron Baudin, 30 June 2021.

In terms of capacity-building, many interviewees raised important questions, such as: Is it the responsibility of the humanitarian sector to invest in capacity-building for DHCs? Does the sector even have the resources to fund its own capacity-building before it invests in capacity-building for DHCs? What is the humanitarian sector's responsibility towards the communities it is helping? How are organizations engaging new actors in their response missions?

Just as DR2.0 suggested, some interviewees proposed to improve capacity-building for the DHCs either via partnership agreements or other methods. One imperative area of investment identified was in data and IM, especially with the looming risk of cybersecurity threats. Some believe the sector is not ready to address the shocks of cyber threats and that, for example, organizations lack a digital forensic team that could identify the specifics of data leaks. Others expressed that capacity-building is not necessarily the problem, since the humanitarian system has the mechanisms in place to ensure good coordination. The real problem is bringing new actors on board and shifting the mentality of those working in the formal humanitarian sector towards collaboration. Many interviewees confirmed that the more people practice and prepare together in simulations or training modules, the better the result and greater the outcomes will be in the case of a real disaster.

> *All sides of humanitarian engagement need to benefit. There needs to be opportunity for both humanitarian organizations and V&TCs [DHCs] to engage and learn from one another. We don't need to build capacity; we need to build together.*
>
> **— Mikel Maron**

Some stressed that capacity-building is more dependent on having passionate individuals within the organizations willing to engage with the DHCs and develop these additional materials for their use. The process requires an exchange of knowledge, and both sides need to benefit from this engagement for it to work. Ultimately, it is a learning experience for the humanitarian sector and the DHCs. For the most part, the DHCs have learned how to work with the traditional humanitarian system. However, as some interviewees expressed, traditional humanitarian organizations are not doing enough to work together.

There were many efforts to enable the DHCs through simulation, training and other workshops. Especially in the first year after DR2.0 was published, many interviewees reported that they had attended workshops and a series of trainings, yet they are unsure whether those remain active. One interviewee had an interesting idea to expand the resource pool to include a network of universities, which includes their wide range of capacity-building capabilities. A real issue identified was about investing in volunteers who may or may not show up for the next disaster.

Instead of focusing on the DHC's capacity-building, the focus now needs to be on investments for local capacity-building, including local and national Governments, in order to strengthen their response during a humanitarian crisis. Therefore, any investment in the DHC's capacity-building must unquestioningly prove that the investment is worth it through financial analysis. Otherwise, these resources should focus on the localization efforts of the disaster response.

> *We need a paradigm shift. Actually, I think we are on the cusp of one. In the next few years, we will find ways to empower the people who best know what their needs are, and the solutions are likely to involve some emerging technologies and the right partnerships with industry to help us 'scale trust' across communities and networks. I think this will profoundly change the aid sector – it is likely to look very different in five to ten years.*
>
> **— Mark Dalton**

Microtasking

DR2.0 discussed several problems that needed to be solved based on the information challenges in Haiti. One of the most significant problems was the issue of fragmentation of information flows and systems. As mentioned in the previous section, one way to solve this issue is to establish frameworks and partnership agreements between the formal and informal humanitarian communities, with an aim to enhance decision-making and information-sharing abilities.[19] With the establishment of frameworks and partnerships, the report's authors seemed optimistic that microtasking—a type of crowdsourcing that divides a large effort into discrete, small tasks—could be used to complete time-consuming tasks more efficiently. When reflecting on whether the formal and informal humanitarian communities have leveraged microtasking or whether they should, there was a divergence of opinions among the interviewees.

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19   "Disaster Relief 2.0: The Future of Information Sharing in Humanitarian Emergencies," p. 48

In the years following DR2.0's release, many different microtasking projects were carried out. Some failed, some showed promise but faded over time for various reasons, and others turned into core, formalized work. For example, the process of Missing Maps and Humanitarian OpenStreetMap turning satellite imagery into maps is now core to current GIS work. The projects no longer make news headlines, but their work is now a "boring" but expected part of data preparedness and response efforts.

Some interviewees insisted that it is worthwhile for the formal humanitarian community to "microtask" or break down time-consuming tasks by delegating them to the informal humanitarian community during a disaster relief response. Over the past decade, connectivity inside a disaster arena has significantly improved, resulting in an influx of data flowing from the field. To ensure that microtasking does not add to IM officers' heavy workload and become burdensome, formal humanitarian organizations must clearly define what questions they seek to answer before engaging with the informal humanitarian community, and informal humanitarian networks must have some organization structure in place and a pre-established relationship of trust with the formal humanitarian organization.

With these two considerations in place, informal humanitarian organizations are often better positioned to conduct training to understand the sociocultural context of the response, manage the assigned tasks and abide by ethical principles.

> *Bring on board partners when the cameras are off. To the extent possible, try to establish partnerships before the emergency strikes. This way we know our roles and how we work together from the get-go of an operation.*
>
> **— Oscar Caleman**

However, another interviewee acknowledged that the formal and informal humanitarian communities are not always able to meet the criteria and effectively engage with each other because:

> " *The problem with V&TCs [DHCs]—a lot of the standing organization is missing by their nature—the volunteers come and go, and their leadership comes and goes as well. Except for the V&TCs [DHCs] that professionalized. But with the high turnover of people, they try to reinvent the wheel, and you have to rebuild those relationships with each response.* "

— **Emerson Tan**

Although there are barriers to engagement, many interviewees referenced instances of successful engagement, such as Hurricane Sandy in 2012 and the Nepal earthquake in 2015. Many claimed that there is opportunity for greater collaboration, human computing and real-time machine learning. If the formal humanitarian community can clearly define what questions it seeks to answer, it can then explore how the informal humanitarian community and machine learning can best support those objectives in the early days of the response. In fact, some Haitian interviewees involved in the tech industry praised microtasking as an effective method of operating. They also emphasized how microtasking can be a way for technologically enabled individuals in the affected populations to make a living.

For various reasons, other interviewees disagreed with the notion that microtasking is useful and should be leveraged by the formal and informal humanitarian communities. Their concerns included the amount of management and oversight required when outsourcing, the informal community's use of less secure systems, volunteers handling very sensitive data, challenges surrounding data-verification mechanisms from digital humanitarians, and a lack of frameworks to measure its effectiveness. There was at least one report of sensitive data being compromised. Obviously, these are all critical aspects and are mostly true for any project. Overcoming them would require a dedicated effort and a well-planned project.

Resources

> **❝** *Humanitarian interventions are Band-Aids; we are not a solution so there will never be enough resources to subsidize a crisis situation and all of the social sectors that need to be reinforced to address shocks in the world.* **❞**

— Andrew Alspach

In short, most interviewees did not believe that enough resources were dedicated to achieving DR2.0's recommendations. Some believed that the humanitarian sector's rigidity and risk-averse nature prevent it from seeing the value that the DHC could bring to a disaster response. Perhaps the new actors (the DHC and social media) were seen as a threat to the sector and its ability to remain the locus for being the main source of data for an emergency, and this led to the lack of resources dedicated to their efforts.

The question of whether it was the humanitarian sector's responsibility to fund and invest in the DHC surfaced during the interviews, with some musing that perhaps it is the DHC's responsibility to gain the knowledge, professionalism and work methods required by the sector. Even if one believes that the humanitarian sector should fund the DHC, it was pointed out that the sector lacks the capacity to allocate resources in a strategic way to leverage such innovative and technological efforts. Regardless of where the responsibility falls, it became clear that a lack of resources was a major contributor to why the DHC's model failed to prove durable.

Many claim that because the sector is already resource-constrained, it would be a good idea to broaden the resource base by including think tanks, NGOs and universities through partnerships that look beyond traditional donors. The sector was especially overstretched between 2010 and 2012, as it was dealing with crisis upon crisis. Some believe these partnerships are beneficial, especially those with the private sector, while others raised concerns about whether the private sector can be trusted, given it lacks a mandate or a charter in the humanitarian arena.

As one interviewee explained, the organizations within the humanitarian sector already do not collaborate enough. Therefore, attempting to collaborate and bring in DHCs is an added challenge. Ten years ago, the DHCs could be seen as the mediators between traditional agencies and the people on the ground, so it was prudent to invest in collaborative efforts. Even though the formal humanitarian organizations' internal capacity to process social media data is limited, their expanded capabilities have left little room for DHCs to operate in that space. Therefore, the consensus seemed to be that instead of investing in DHCs, the sector should focus on investing in its own IM capabilities and data-processing systems that overwhelm humanitarians during the onset of disasters.

However, it was interesting that a few interviewees believed that sufficient resources were dedicated towards achieving DR2.0's recommendations. Some stressed that even if new resources were not given, many individuals within the sector were committed to the recommendations and tried to create meaningful connections and collaboration networks with the DHC.

Even if individuals agree that funding should be allocated, creating meaningful changes without sufficient attention from senior management is complicated and difficult. Each institution within the sector has its own priorities, and each has to deal with the issue of limited resources in different ways. Not all organizations even agree on the life-saving nature of information.

> *Information management meets life-saving criteria and should be deemed life-saving by organizations like OCHA. But OCHA doesn't make country-based pooled funding accessible for V&TCs [DHCs]. OCHA won't let you apply for funding for information because it is deemed "not life-saving."*
>
> **— Jeffrey Villaveces**

The DHCs do bring an independent view of technology, their unique set of skills and a passion for humanitarian work. There is clearly value in having them around the sector, even if just to help push traditional organizations forward in their thinking. Of course, how they can maintain themselves in such a role comes back to the resourcing challenge, and that brings us to another issue with the topic of resources: donors.

Donors

Many interviewees believe that when we discuss resources, we should focus on donors rather than on the traditional humanitarian sector. If donors provided an incentive, informal and formal organizations would be motivated to collaborate in order to achieve greater outcomes. Unfortunately, this is not the case. Many believe that donors are positioned to lead these changes within the sector, and it can be difficult to get donors' attention before a disaster in order to gain funding for such pre-crisis collaboration and preparation. As Noel Dickover stated, *"When the crisis happens, that's when donors are working, not before when you can actually prepare."*

> ❝ *Resources aren't allocated on the basis of need. The way it works is that you find a donor who is interested in your initiative. That's how the game works.* ❞
>
> **— Brendan McDonald**

Multiple interviewees agreed that, unfortunately, donors are primarily motivated to work if there is extensive media attention. For example, in the case of Haiti, the media focused on Port-au-Prince and neglected other affected areas. This resulted in most arriving responders, including donors, immediately focusing their attention within Port-au-Prince rather than looking elsewhere in the country.

It could be interesting to explore the idea of donors specifying a percentage of their project costs for IM in a similar way that they do for overhead charges. As donors often request assessments, raw data and/or visual products, perhaps a standing charge for such services could be articulated and levied. Calculating the cost of data collection can be done quickly.[20]

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20   Guidance for the Calculating Humanitarian Data Collection Costs (April 2021). Alex Muller, Andrej Verity and Kenny Meester. https://www.digitalhumanitarians.com/guidance-for-the-calculating-humanitarian-data-collection-costs/

Additional Considerations
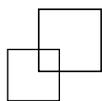
This section covers additional topics, as mentioned by the interviewees, that did not align with DR2.0 but are important as future considerations.

Technology

The interviewees raised the question of technology, especially as we continue to digitalize aid, along with its opportunities and limitations. Many agree that technology is important and could provide opportunities for the humanitarian sector. However, many stressed that technology is not key to successful operations and warned of technology's dangers. With today's increased digital adoption, there is a higher risk of cyberthreats by malevolent actors, compromising sensitive and important data. This requires the system to invest heavily in cybersecurity.

Another example that illustrates technology's dangers is AI, where humanitarians need to have safeguards to ensure we are not introducing biases in AI. At a less advanced level, low connectivity can still significantly impact disaster response.

At times, the sector overestimates its technological capabilities, according to some interviewees. They explained how humanitarians need to be able to distinguish between which parts of the operations need to be done on the ground and which can be done remotely. In that way, the traditional system can build the necessary structures to help achieve and support these remote activities.

They also stated that, for the most part, humanitarian organizations do not have the required data to build fancy machine-learning solutions. Some even stated that if organizations or agencies do have the required data, most are unwilling to share it with other organizations in the sector. Many believe that this lack of sharing will be a persisting issue in the coming years. Others argue that technology will force the humanitarian sector to evolve along with it. Most interviewees agreed that there will be more discourse on data sharing and data disclosures in the near future, and one person suggested that the sector needs to build a road map for institutions, universities, donors and the DHCs to interact and engage with the traditional system in IM.

Some predict there will be a 'data revolution' — that data is expected to grow at an exponential rate.[21] This will raise questions on data standards and ethics, especially as privacy and security are at the forefront of data and technology conversations. If the system is going to build its capacities to handle the massive influx of data, then humanitarian organizations need to learn how to manage and capitalize on it. On one hand, with the near democratization and affordability of technology and the Internet, there is an incredible potential to reach more people. But on the other hand, there is a high possibility that people fall victim to misinformation and disinformation, leading to the breakdown of trust between various actors. Social media, advanced AI, strategic partnerships and crowdsourcing will all become critical components of disaster relief.

On the Traditional Humanitarian System

The traditional humanitarian system continues to be stressed due to the increasing number of armed conflicts and the increasing duration of response efforts. Because of the high-pressure environment humanitarians work in, there is a high turnover of staff. Of those we interviewed, nearly one third had left the humanitarian sector. Such turnover leads to "loss of valuable experience and knowledge."[22]

Other concerns include the previously mentioned inflexibility and rigidity of the traditional humanitarian system, which will cause it to lose out on important opportunities to leverage new and emerging technologies. For example, some interviewees believe that if the system agrees to communicate via certain data languages, it would help build resilience in its technological capabilities. For instance, Excel spreadsheets are still the common denominator in many operations. Many interviewees raised concerns that if an organization's technology cannot translate data into a spreadsheet, such a system would ultimately prove useless.

> *There used to be more dialogue about where we can go and where we should go; now it seems everyone is just doing their own thing. It's institutional inertia.*
>
> **— Jeffrey Villaveces**

21   Holst, A. (7 June 2021). Total data volume worldwide 2010-2025. Retrieved 25 August 2021, from https://www.statista.com/statistics/871513/worldwide-data-created/

22   Bishop, C. (14 February 2020). The impact of high staff turnover on company culture. Retrieved 10 August 2021, from https://www.hrdconnect.com/2019/09/10/the-impact-of-high-staff-turnover-on-company-culture/

To some, the system is experiencing institutional inertia. Technology itself is not the main driver of progress but rather about having effective management. Human intelligence is necessary in this industry, especially when it pertains to decision-making. There is an alarming level of dismissiveness of new and innovative ideas that is seen as a "normal design pattern," as one interviewee pointed out.

> *There is inertia in the system. If you bring in modern ideas, the system mouths the new buzzwords but doesn't actually want to go through the change process.."*
>
> **— John Crowley**

Some in IT management positions are selected based on their experience in the technology field, not on their humanitarian experience. Obviously, this creates a gap between humanitarians on the ground and management, who are ultimately the decision makers in technology projects. This disparity in understanding oftentimes leads to management digitizing aid for donors rather than for on-the-ground delivery of aid or building local capacity.

Some interviewees discussed how the COVID-19 pandemic caused massive shifts in the system in terms of technology. The pandemic forced humanitarian organizations to use technology and trust their local partners and beneficiaries without any physical interaction. Such a transformation may have been so quick that some organizations struggled with the change and therefore rushed back to their old in-person model as quickly as possible.

There were many ideas on what and how technology will be implemented, but everyone agreed that it will continue to advance and play an ever-larger role in disaster response in the coming years. Being a technological laggard, the sector will need to learn to adapt and adjust faster or face the likelihood of decreased relevance.

Localization

The traditional humanitarian system is slowly moving towards localization of disaster response. In recent years, several DHCs have dissolved from the humanitarian landscape, leaving humanitarian organizations to grow their own relationships and communicate directly with communities. When it comes to data, humanitarians need to ask themselves whether they are just extracting and mining information from locals without actively engaging with them regarding the status and use of their data. If not, the real question becomes one of whether the humanitarian sector can actually leverage new technologies responsibly.

Many interviewees agree that there will be more conversations about emerging technology that would focus on which technologies should be used, for what purpose and, more importantly, who has access to them.

> *It's far easier to keep the discussions limited to the 'what' and 'how,' rather than then expanding them to include the 'who'. The 'what' and 'how' are all about optimizing technical solutions and carrying out technical evaluations to generate best practices and lessons learned. But asking 'who?' gets to the heart of the matter, as it brings up issues around power, historical injustice, systemic inequality and more.* [23]

> — **Patrick Meier**

There is a lot of discrimination in answering who gets to use these technologies, where the default is assumed to be Westerners.

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23 "Technology's most important question: Not what, not how, but who?" (19 February 2021). Retrieved 29 June 2021, from https://blog.werobotics.org/2021/02/16/not-what-not-how-but-who/

> *The discourse is a problem in a way, the notion of an expert. "Who gets to be the expert?" And we think it's us because we are the highly educated. And when local governments think of experts, they think of foreigners, they think of the West, too. We need to change the narrative to the point that when one thinks of the word 'expert', we should be thinking of local experts rather than foreign experts.*

— **Patrick Meier**

The majority of today's technological projects are led by Westerners. Ten years have passed since the earthquake in Haiti, and there are many community-initiated digital initiatives in Haiti and other affected regions. One Haitian interviewee explained that there is a growing number of technology-enabled organizations in Haiti, making it easier for humanitarian organizations to collaborate and engage with local actors. Are disaster responses going to incorporate these new initiatives? To date, the issue remains that there is not enough push towards finding local experts rather than looking towards the West for experts.

> *The notion of parachuting [in] experts is ridiculous; the professionals are already there in the local communities. Civil society has an active role in helping its country.*

— **Noel Dickover**

If disaster response is moving towards localization, the system needs to support and engage with experts from the local communities. Many agree that it is not necessarily the technology used that determines the outcome of a disaster response but rather the approach: Is it local? Is it inclusive? Any disaster response strategy must answer: How do we empower the locals? How do we put them in the driver's seat?

> " *The vast majority of these technology projects are led by white men and Westerners for the most part. It's almost implied that we don't need to ask who uses these technologies because by default it's the elite, the Westerners. We need to shift away from this.* "
>
> **— Patrick Meier**

As the sector is being driven by Governments and citizens towards better localization, Governments worldwide are beginning to take more responsibility for managing their own response and will utilize the international humanitarian sector much less. Local groups have also been mobilizing themselves in innovative ways. Moving forward, the international system must be able to adapt solutions to the local context much faster.

> " *I'm a big advocate for using local resources in combination with outside assistance. We should definitely get involved with local groups doing the work. We need to think of strengthening local organizations' capacity instead of bringing all the resources from outside.* "
>
> **— Jacky Poteau**

Other Actors

Most interviewees agreed that the leaders in leveraging technology are militaries and the private sector. The private sector continues to pioneer new improvements and technologies. This begs the question: Is there not a bigger role for the private sector in humanitarian crises? A few interviewees stressed that going forward, humanitarian organizations need to work with the private sector, more specifically the tech giants, and that many opportunities could arise from those partnerships, especially since the private sector's technological capabilities are much more advanced.

> *Humanitarian organizations partnering with the private sector is very important because it is in their [the private sector's] interest to get the country moving again, so excluding them doesn't make sense.*
>
> **— David Aylward**

Many predict that large technology companies, especially the social media platforms, will have an even larger role in the future. Therefore, some believe it is important to arrange some sort of engagement with these companies and place pressure on the technology ecosystem to serve the humanitarian community. In addition, the system needs to familiarize itself with other technology companies that are growing in scale and/or across regions. For example, there is a rise in Chinese technology companies, such as WeChat, in South-East Asia.

> *The future of technology in the humanitarian sector, I hope, is transparent and open. This should be the priority of every single institution that provides services. I hope that donors get more involved in enabling their NGOs to deliver new kinds of data that create new insights and efficiencies.*
>
> **—Heather Blanchard**

DR2.0: A 'Snapshot in Time'
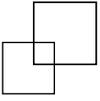
During our interviews, the interviewees shared a wide array of reflections on DR2.0, ranging from the framing of the report to the persistence of system-related issues to broader challenges that spanned beyond the scope of the initial report.

Several interviewees commented on how the framing of the report was very Western-centric because it held a specific view of what a humanitarian response should be that has long been embedded in an institutional framework. They also claimed that the report largely focused on how the humanitarian sector can enable humanitarian organizations (the UN) by establishing an interface with the V&TC (the DHC).

Many believed that the report's focus on establishing a humanitarian interface and integrating technology into humanitarian response was problematic because there ended up being no local representation. Adding to this, some interviewees believed that even the terminology used in the report, particularly "V&TC," was problematic because it suggests that the diverse networks of volunteers involved in the disaster relief response in Haiti and beyond are a monolith that can be described using a catch-all phrase.[24]

Several interviewees, as well as a 2011 response to DR2.0,[25] noted that there was opportunity for greater inclusion, in terms of consulting more women, NGO representatives and Haitian locals. The interviewees stated that most volunteers involved in the disaster relief response in Haiti were, in fact, local Haitians who may have had a lot to contribute to the policy discussion but were never given the opportunity.

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24   StandByTaskForce, "Why We Need a Disaster 2.1 Report," StandByTaskForce (6 April 2011). Accessed on 16 August 2021, https://standbytaskforce.wordpress.com/2011/04/06/why-we-need-a-disaster-2-1-report/

25   Ibid.

> *You have to try to mobilize the community. That was not covered in the report. It's all looking at how we could do it at the higher levels but not how we could help the local populations do it themselves. But that probably wasn't the focus or the terms of reference, it was more to build a bridge between humanitarians and V&TCs [DHCs]. But ultimately we want to make the communities resilient, and that was not really mentioned.*
>
> **— Suha Ulgen**

The interviewees did acknowledge that the humanitarian sector has directed more support for local communities, such as connectivity and training, but that it still has a long way to go in terms of engaging them in future disaster response.

Many interviewees also discussed the persistence of IM challenges, claiming that the volume and the vectors of information have changed drastically over the past 10 years, resulting in persistent challenges around situational awareness. The interviewees pointed to social media platforms as one example, claiming that at the time of DR2.0, social media, including WhatsApp, was not utilized in the same way as it is today. Social media has afforded millions of people the ability to connect and communicate instantaneously and provided the humanitarian sector with greater insight into the affected population's perspectives and needs. The interviewees explained that although there have been some collaborative efforts, such as DHN or HDX, traditional humanitarian organizations have not been able to fully leverage the opportunities provided by social media platforms and DHCs because they are still grappling with a myriad of IM challenges.

> " *I still don't think we use V&TCs [DHCs] as well as we could because we find it difficult to get over the question of how to communicate and how to ensure good information flows across multiple participants that V&TCs [DHCs] compromise. In a big emergency, at the early stage, it is often a relatively small number of people from the international system involved in the response with the national authorities. There is still a long way to go between communities that live and work in an environment that might be facing disasters and the international system.* "

> —**Liz Hughes**

According to several interviewees, technology, more generally, has evolved rapidly since DR2.0. Some recalled that when the report was written, there was a great deal of excitement around Crowdsourcing and Ushahidi, but that excitement has shifted with the rise of big tech companies and the app economy.

> " *There was so much excitement around emerging technologies at the start of the last decade, and this led to a sense of disillusionment for some people when things didn't turn out as planned. We had this utopian idea of what technologies could do, but the reality was quite different. We have a much better sense now in society broadly of the benefits and risks associated with emerging technologies, and we need to build that critical lens into humanitarian discussions.* "

> —**Andrew Schroeder**

Many interviewees held the view that the report's authors could not have foreseen the technological growth and automation that has occurred over the last decade. Nor could they have seen the downsides, including the rapid spread of misinformation and disinformation or the exacerbation of inequalities among affected populations. Most noted that these technological trends show no sign of slowing down, and that the humanitarian sector is going to have to regenerate its technological tools and processes every five years or so to keep abreast with new and emerging technology.

> *Technology, and innovation, can sometimes become a distraction from those deeper, political and intractable complexities within humanitarian organizations. While we very often focus on the good that technology can bring to people's lives and to the [humanitarian] sector, we need to acknowledge and act on the fact that technologies also deepen old inequalities and create new ones in the form of digital, age and gender divides.*
>
> **—Andrew Schroeder**

The interviewees frequently raised the issue of the risks of technology and innovation in the humanitarian sector, claiming that people in the sector may have been overly optimistic, and perhaps a bit naive, at the time of DR2.0. Although the sector has a better grasp of the potential risks of new and emerging technologies, it needs to build that critical lens into discussions around ethical standards, as well as the extent to which technological advancements are changing people's lives or putting them at risk on the ground.

The commonality running through most interviewees' reflections was that despite its limitations, DR2.0 was a "good snapshot of its time," and that predicting the future is incredibly difficult. The interviewees acknowledged that it is easy to look back on the Haiti response and DR2.0 with 20/20 hindsight.

" *A lot of what we are talking about today was not present in the 2010 report because it could not have been foreseen. The speed and scale of information generation, the entwined vectors through which information is distributed, an increasing array of producers along with an ever-increasing volume of content are some of the key developments over the past decade and pose new challenges or complicate older ones for humanitarian actors.* "

—Sanjana Hattotuwa
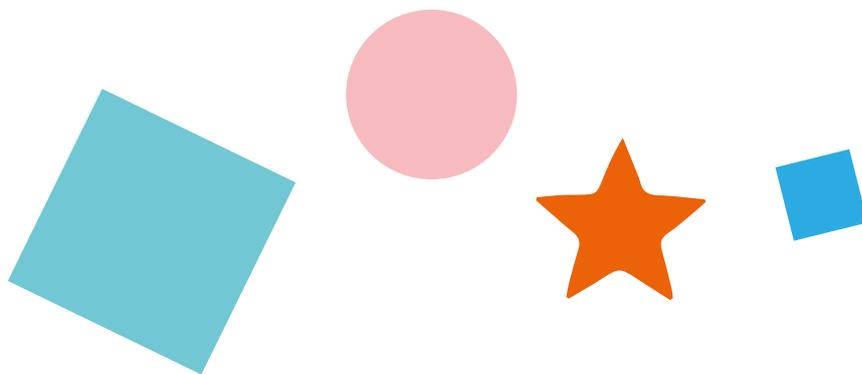
Lessons Learned & Recommendations
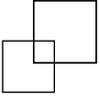
Our initial intention was to explore the relationship between the DHC and the traditional humanitarian sector specifically by looking at IM, data sharing and data overload, partnerships and so forth. As the interviewees shared their thoughts on the persisting challenges of the traditional humanitarian system and other future considerations, we found a series of conversations on topics that span beyond information and data, such as localization, burnout, resources, adaptability and preparedness. For the interviewees, it was crucial to discuss the entrenched problems in the humanitarian sector in order to understand the lack of progress in other areas.

This section includes lessons learned and some recommendations based on these fruitful discussions.

> *I think we have reached a point where the humanitarian system is looking unsustainable. Our current system – faced with protracted crises, environmental degradation, migration and pandemic – is facing incredible stress. We can continue to improve how we work to deliver more efficiently and effectively, and that's a valid thing to do. But the real question going forward is 'should we be trying to do things in a different way?*
>
> **—Mark Dalton**

Localization

" *The most important type of response is the community helping itself.* **"**

—Robert Monarch

Localization was one of the most significant underlying issues that interviewees frequently raised. Many pointed out that 10 years ago, the humanitarian sector was largely focused on how it could enable its organizations rather than the affected communities. This focus encouraged a one-size-fits-all approach to disaster response that failed to consider the cultural circumstances and needs of the affected community.

Today, the focus has shifted towards localization to better meet affected populations' needs. However, there is still a great deal of work to be done in various areas.

First, the humanitarian sector must ensure that it is not just extracting data from the local population and that it includes these populations in its data loop and analytical processes. The sector needs to be more inclusive in its decision-making processes around this data.

Second, it is essential to centre the local populations' voices and concerns in disaster relief response. Working in a local language and leveraging modern translation tools will be key to ensuring that everyone — on all sides — is heard and understood.

Third, and more importantly, humanitarians should customize any response based on a cultural and contextual understanding of affected people's actual needs and demands rather than on assumptions of what is needed.

" *A real focus on the true localization of aid is something that people are becoming more attuned to, but far too little ground has been covered.* **"**

—Vincenzo Bollettino

The interviewees asserted that the sector should seek to engage more with local leadership and communities to develop a deeper understanding of how it can empower and enable affected populations to spearhead disaster relief response and propel sustainable change and solutions.

> *The impact of investing in the preparedness of local communities and national actors cannot be overstated. We have seen some excellent examples over the past decade of countries that now very rarely need international assistance largely thanks to focused long-term investments in preparedness.*
>
> **—Oscar Caleman**

> *We need to make a more concerted effort towards working directly with municipal authorities, affected people and the organizations that support them. That demands from us, humanitarian organizations, to be less of a doer and more of an enabler and let go of power and control. And that still makes a lot of people nervous.*
>
> **—Jacobo Quintanilla**

There are two obstacles on the road to localizing disaster response. First, as some interviewees noted, localization is largely dependent on the humanitarian system's ability to adapt to the changing environment. The system's inflexibility could hinder the benefits of localization. Also, the culture of the humanitarian system and the donor model that funds it have been slow to adapt to the localization of aid.

The second obstacle is the lack of response preparedness in terms of a cultural and context-based understanding of the affected country/region, and partnerships and agreements in place with entities such as local volunteers, organizations and government agencies, especially regarding IM-related issues.

> *We need to give more power to the affected communities. There has been a shift and I don't think the humanitarian system has fully woken up to it yet, although I also think that's changing now - we need to put the power in the hands of the people. That doesn't fit well with the international humanitarian business model. But it's not the fault of people in information management, it's a broader systemic issue.*

—Oliver Lacey-Hall

One of the perhaps larger questions raised by some interviewees was why the international community continues to feel the need to parachute in so many humanitarian "experts".[26] When can we adjust this approach by relying more on local experts, and therefore save money, which can be put towards other critical elements of a response? How do we support the community to help itself? How can we rethink how our resources are used?

> *If we are actually going to be humanitarians and are going to work in those communities, we need to rethink how we share our resources. Local communities need to be in charge, especially when humanitarian funding is going down. The donor model of humanitarians is not set up for the new future. We need to think of how we transform. We need to think of our leadership. This is a complex system, which means you have to hire for the future.*

—Heather Leson

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26   The question of parachuting humanitarian experts into Haiti was first raised by Marie Carmele Rose Anne Auguste in her interview and a follow-up email.

Preparedness

DR2.0 offered recommendations on establishing an interface between traditional humanitarian organizations and digital humanitarian networks. During our interviews, the topic of a humanitarian interface resurfaced repeatedly. This time, it was not in the context of responding to a disaster or an emergency but rather anticipating and preparing for a disaster or an emergency. The interviewees insisted that the interface should extend beyond traditional humanitarian organizations and the DHCs to encompass tech companies, local institutions and organizations, and online and offline communities. They believed this to be possible because humanitarians can draw on past experiences to anticipate and predict a disaster or an emergency. And having an interface with local actors beforehand will help to contextualize the response efforts early and make them more impactful. Some suggested that part of preparedness could be leveraging local universities to understand the local cultural context, responses/lessons, etc.

In terms of data-processing systems and capacities, the humanitarian sector should invest heavily in increasing its absorptive capacity for incoming data, especially as it pours in from multiple sources. This preparation familiarizes humanitarians and field officers with data and information workflows in advance. This would make it easier for organizations to collaborate and form partnerships, as well as improve the likelihood of an effective response.

Most interviewees strongly agree that preparation is the key to a successful operation. They felt strongly that the traditional humanitarian organizations and the DHCs should engage in capacity-building, training and simulations to identify potential gaps in humanitarian response before a disaster or an emergency. In addition, the traditional humanitarian system must include local volunteers, organizations and Government agencies in these trainings and simulations.

The interviewees explained how it is easier to work with and trust groups and organizations that they have collaborated with before, either through previous agreements, partnerships or even workshops. Many interviewees stressed the difficulty of creating these types of relationships during the stressful and high-pressure environment of a disaster response. The traditional humanitarian sector must invest in creating the spaces where different organizations and groups can engage, either in person or online, to create flourishing partnerships.

Adaptability

Another entrenched issue raised repeatedly was adaptability within the humanitarian sector. According to most interviewees, the humanitarian sector still largely operates the same way as it did 10 years ago, which results in it still grappling with many of the same issues surrounding IM, humanitarian interface and lack of resources. The interviewees claimed that the humanitarian sector needs to facilitate adaptability in its structure, senior-level management, technological use, people and culture.

Many discussed how the bureaucratic structure of traditional humanitarian organizations is designed for large-scale, systemic coordination of operations, leading to institutional inertia and an inability to adapt to environmental change. The interviewees pointed out how the humanitarian system still takes a top-down approach that is rooted in colonialism, and despite various workshops and initiatives, the power mechanisms have not changed to become more localized.

> *The momentum is going too slowly. The implementation is too slow. They often have good ideas but poor execution. There are low resources, multiple jobs — everyone's doing a million things — it's not funded properly and no one can figure out how to change the power imbalance*
>
> **—Heather Leson**

Interviewees highlighted that some people in senior-management positions sometimes lack on-the-ground experience or an in-depth understanding of how different types of data or technology can best support a response. The interviewees contended that without this critical knowledge, senior management does not always know what tools and procedures to prioritize, which can breed a disconnect between senior management and field staff.

Many interviewees who discussed issues of institutional inertia and the system's lack of operational flexibility and adaptability were optimistic that a new humanitarian paradigm might be under way. They claimed that we may be on the cusp of a generational shift, in which the younger, tech-savvy generations are entering the humanitarian sector and changing the organization's culture in the way it communicates with local actors and communities. Some interviewees also believed that with this generational shift, the traditional humanitarian system may be able to train and bring onboard digital humanitarian networks more quickly, and thus leverage them to scale data and make humanitarian workflows more agile.

A few interviewees explained that because the traditional humanitarian system deals with matters of life and death, its rigidity and inflexibility are justified. But even they noted that there is still space for change.

Overall, it became clear that there is an urgent need for the system to become more adaptable in order to harness opportunities created through digital communications. The humanitarian sector needs to keep up with technological advances, whether building or buying, or face the possibility of being superseded by local groups and governments, private entities and innovative volunteer organizations.

Data Security, Privacy & Accountability

> *The security around data right now is built around the idea of what we can limit people from doing, rather than what we can allow people to do safely, recognizing that communities are active digital information consumers and producers.*
>
> **—Anahi Ayala Iacucci**

Several interviewees claimed that 10 years ago, the humanitarian sector did not fully understand the power of exponentials in communications. The advancements in technology and communications in the past decade have provided the humanitarian sector with information accessibility that was undreamt of during the Haiti disaster relief response.

The interviewees asserted that with increased technological capability and information accessibility, data privacy and security should be at the forefront of concern. Even though many large organizations have made progress in creating best practice toolkits and modules, such as the International Federation of the Red Cross's Data Playbook Toolkit,[27] the interviewees claimed that the humanitarian sector needs bolder data standards and security measures to ensure that the sensitive data being extracted from affected populations is protected from authoritarian Governments and malevolent actors.

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27   Data Playbook Toolkit version 1: https://preparecenter.org/toolkit/data-playbook-toolkit-v1/.

The interviewees also discussed issues of accountability with the use of technology and data extraction. As an example, it was noted that humanitarian organizations often come into refugee camps and extract sensitive data in exchange for essentials, but without giving the camps' residents much choice in terms of what data is being extracted and how it will be shared. In keeping with localization, interviewees stressed the importance of giving affected populations more agency over their data and how it is being shared. Local communities need to have the opportunity to control their own data and accept the risk when sharing it.

Avoiding the Hype Cycles of New Technology

" *There can be a danger when we get wowed by technology.* **"**

—**Liz Hughes**

Many interviewees claimed that with the significant technological advancements made in the past decade, the humanitarian sector has repeatedly succumbed to hype cycles of new and emerging technologies. It often tries to apply new and emerging technology to contexts where it is not relevant or before it fully understands the risks. To prevent these cases, the interviewees claimed that before employing such technologies in the field, the humanitarian sector must consider any technological biases, who has control and who has access.

Technology can be a force of good in the humanitarian field, but most stressed that technology is not going to solve all humanitarian problems. Rather, the human element—in terms of intelligence and community engagement—will always be a necessary component in humanitarian responses.

" *Technology is promoted as a solution to many problems, but we learned that technology provides us with more information and more data, which just means more analysis is needed. It still hasn't solved the world's problems and it has created some new ones.* **"**

— **Dennis King**

> **"** *Technology is great, but it's not going to save us. The more complicated things get—like with AI and real-time data services—the more convinced I am that simplicity is really important if you want technology to make a difference in people's livess.* **"**
>
> **—Andrew Schroeder**

Burnout

At the individual level, many interviewees claimed they have observed burnout among humanitarian responders due to their high-stress role over the past decade. Many discussed how underlying financial, logistical and political problems in the humanitarian sector have fuelled feelings of frustration, loss of purpose and burnout among responders. Many admitted to having experienced burnout themselves or knowing colleagues who had and subsequently left the field.

There are different reasons many feel burned out. Several interviewees expressed how exhausted they were with the lack of changes and the traditional system's inflexibility. As a result, some interviewees left the traditional sector, believing they could create more meaningful change outside the system. Others recalled how they felt completely burned out before they even arrived at the disaster. They shared stories of how long and exhausting the trip itself often is just to reach the affected area. Responders arriving after hours of transport, without rest, are expected to start their operations first thing.

In addition, severe disasters often lead to situations where proper nutrition is not available and sleeping conditions are uncomfortable. The interviewees felt very strongly that the humanitarian system needs to become more situationally aware and take measures to prevent and observe burnout among responders.

Absent any measures, interviewees contended that there could be a high turnover of humanitarian staff. This could negatively impact the capacity and effectiveness of humanitarian operations, as they lack trained staff with practical knowledge and field experience. As one interviewee pointed out, burnout is the most important issue for the sector to resolve and observe because it connects to every other issue highlighted in this section. Many believed that burnout could be an underlying factor of the sector's lack of adaptability to new actors and emerging technologies, as well as successful preparation and coordination for humanitarian disasters and emergencies.

Resources

Many recommendations in DR2.0 have not been fully implemented because of entrenched issues within the humanitarian sector. For example, there were several recommendations in the report on IM practices, but the underlying issue of inadequate resources and resource management has impeded the humanitarian sector's ability to improve its IM practices, from Excel spreadsheets to more efficient, automated processes.

According to several interviewees, humanitarian organizations dedicate most of their resources to the core elements of humanitarian responses that are perceived to meet life-saving criteria, and IM is not one of them. Several interviewees questioned the notion that information is not life-saving, claiming that humanitarian organizations pride themselves on having evidence-based responses, and thus they need to put more resources into acquiring and processing high-quality data and information that is fundamental to formulating effective humanitarian responses.

> *Data matters. We always talk about evidence-based responses in every publication, but the actual investment in data-driven infrastructure and training remains low.*
>
> **—John Crowley**

Re-evaluating resource allocation has become more important than it was 10 years ago, according to the interviewees. They outlined the emergence of new actors that has led to an exponential growth in data inflows, and thus an increasing need to scale and integrate the data inflows into actionable insights.

Since the issue of inadequate resources and resource management is sector wide, many interviewees suggested that traditional humanitarian organizations and digital humanitarian networks should consider forming their own consortiums to pool resources rather than competing among each other for finite resources.

Conclusion
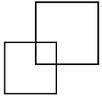
For the most part, the DHCs have either transformed or dissolved. However, it is important to recognize that they have helped the traditional humanitarian system see the urgent need to change and adapt to the conditions of the 21st century.

> *V&TCs [DHCs] are important and valuable in their own right, especially for providing actionable information to hyper-local ad hoc mutual aid groups. The nimble ability of these groups to shift their priorities and scope especially lends itself to acting on the information V&TCs [DHCs] can gather and share. Their value to established humanitarian operations is dependent on the organizations' ability to define their information needs and to make time to continually coordinate with the V&TCs [DHCs] in an open way.*
>
> **—Wendy Harman**

Ten years have passed, and the humanitarian landscape has changed considerably, which presents new and exciting opportunities as well as new risks. DR2.0's intended scope was to focus on the DHCs and the traditional humanitarian system, IM and other recommendations highlighted in the report. However, we found the interviewees keen to engage in other topics, from localization to burnout to cyber risks and threats to the traditional sector's preparedness efforts and to its lack of adaptability. As these discussions show, there are multiple underlying issues tethered to the topics discussed in the original report. We have outlined and covered many in the hopes of continuing and expanding the conversation that DR2.0 started 10 years ago.

Reflecting on the insights shared by the interviewees, one may ask if the humanitarian sector is at an even bigger precipice. Will the technology that it once got so excited about turn out to be the thing that actually enables more local response and collaboration, and thus truly changes the role of the international humanitarian sector? Only time will tell. Let's see what the next 10 years bring.

Annex 1: Interviewee List
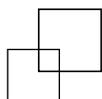
We interviewed 46 people with a range of backgrounds. Five per cent were from Government agencies, 8 per cent were from academia, 13 per cent were from non-governmental organizations, 13 per cent were independent consultants, 16 per cent were from international organizations and 33 per cent were from non-profit organizations.

Of those who were interviewed for the Disaster Relief 2.0 report, approximately 30 per cent have left the humanitarian sector, while 70 per cent remain in the field.

Ninety per cent of the interviewees were international actors, while 10 per cent were Haitian locals.

We made repeated efforts to reach out to other Haitian locals to achieve greater inclusivity within this report. Despite our best efforts, we were only able to connect with and interview five.

	Organization in 2011	Organization in 2021
Adele Waugaman	United Nations Foundation & Vodafone Foundation Technology Partnership	United States Agency for International Development
Anahi Ayala Iacucci	Standby Taskforce	Independent Consultant
Andrej Verity	UNOCHA	UNOCHA
Andrew Alspach	UNOCHA	UNOCHA
Andrew Schroeder	Direct Relief	Direct Relief & WeRobotics
Bartel Van de Walle	Tilburg University	United Nations University - Merit Institute
Brendan McDonald	UNOCHA	Retired
David Aylward	MHealth Alliance	Assistant Clinical Professor at the School of Medicine at the University of Colorado
Dennis King	U.S. Department of State Humanitarian Information Unit	U.S. Department of State Humanitarian Information Unit
Emerson Tan	MapAction	MapAction

	Organization in 2011	**Organization in 2021**
Eric Rasmussen	InSTEDD	Chief Medical Officer at Briotech, CEO for Infinitum Humanitarian Systems & Team Lead for Global Disaster Response Team for the Roddenberry Foundation
Gisli Olafsson	NetHope	NetHope
Heather Blanchard	Crisis Commons	MobiledgeX
Heather Leson	Humanitarian OpenStreetMap Team	International Federation of Red Cross and Red Crescent Societies & Humanitarian OpenStreetMap Team
Jacobo Quintanilla	Internews	Independent Consultant
Jaroslav Valuch	Ushahidi	Transitions TOL.org
Jeffrey Villaveces	UNOCHA	IMMAP
Jennifer Chan	Harvard Humanitarian Initiative	Northwestern University
Jen Ziemke	Crisis Mappers	Life Care Ambulance
John Crowley	Harvard Humanitarian Initiative	Independent Consultant
Josh Campbell	U.S. Department of State Humanitarian Information Unit	Independent Consultant
Kate Chapman	Humanitarian OpenStreetMap Team	*Preference Not to List Current Affiliation
Liz Hughes	MapAction	MapAction
Mark Dalton	UNOCHA	Special Projects Lead in the Office of Information Communications Technology
Martin Kristensson	World Food Programme (WFP)	WFP
Mikel Maron	Humanitarian OpenStreetMap Team	MapBox
Nigel Snoad	UNOCHA	Verily Life Sciences
Nigel Woof	MapAction	*Preference Not to List Current Affiliation
Noel Dickover	Crisis Commons	Internews & Greater Internet Freedom Project
Oliver Lacey-Hall	UNOCHA	Independent Consultant
Oscar Caleman	WFP	WFP
Pascal Schuback	Crisis Commons	Crisis Commons, Cascadia Region EQ Working Group & Humanitarian Toolbox
Patrick Meier	Ushahidi, Crisis Mappers & Standby Taskforce	WeRobotics

	Organization in 2011	**Organization in 2021**
Paul Currion	humanitarian.info	humanitarian.info
Robert Monarch	Stanford University & 4636 Alliance	*Preference Not to List Current Affiliation
Sanjana Hattotuwa	ICT4Peace Foundation	ICT4Peace Foundation
Shelley Gornall	UN High Commissioner for Refugees (UNHCR)	UNHCR
Suha Ulgen	UN CITO office	Risk Reduction Education for Disasters (Risk RED)
Vincenzo Bollettino	Executive Director of Harvard Humanitarian Initiative	Harvard Humanitarian Initiative
Wendy Harman	American Red Cross	ICF Next
List of Haitian Interviewees:		
Jean Max Bellerive	Prime Minister of Haiti (2009-2011)	Consultant associé principal chez HAVEA
Ron Baudin	Minister of Finance of Haiti (2009-2011)	
Rose Anne Auguste	Representative of the Haitian NGO at the IHR	Special adviser to (the late) President Jovenel Moïse
Jacqueline O. Lee	Mission 4636	Haiti ON THE RISE
Jacky Poteau	FATEM	Haiti Development Institute & Innovative Learning Concept Haiti