Building data responsibility into humanitarian action

THINK BRIEF

For more information, please contact:
Policy Development and Studies Branch (PDSB)
UN Office for the Coordination of Humanitarian Affairs (OCHA)
E-mail: ochapolicy@un.org
Twitter: @OCHAPolicy

CONTENTS

BUILDING DATA RESPONSIBILITY INTO HUMANITARIAN ACTION

KEY MESSAGES

- Affected populations can be helped as well as harmed by the use of data. Protecting vulnerable populations from harms posed by data use is the collective responsibility of the entire humanitarian data ecosystem.

- The disclosure of sensitive personal and demographic data in the humanitarian space can lead to already vulnerable individuals and communities being further harmed or exploited.

- Data responsibility goes beyond the concepts of "data privacy" and "data protection". It entails a set of principles, processes and tools that seek to leverage data to improve people's lives in a responsible manner.

- Data responsibility can be achieved through a four-step process:
  1. Evaluating the context and purpose within which data is being generated and shared
  2. Taking inventory of the data and how it is stored
  3. Pre-identifying risks and harms associated with a proposed use of data before data is collected
  4. Developing strategies to mitigate those risks.

- Minimum humanitarian standards for the responsible use of data should include:
  - **Identifying the need:** Data should never be used simply because they can be; the humanitarian need and potential benefits should be clear and defined.
  - **Assessing core competencies:** Humanitarian actors should identify what core competencies are needed to deploy a specific data-driven approach during a response, and only proceed if those competencies are available to them.
  - **Managing risk to vulnerable populations:** Humanitarians should identify risks and harms to individuals and communities before operations commence and adopt a plan to manage and mitigate those risks.
  - **Adherence to legal and ethical standards:** Practitioners are responsible for determining what legal and ethical standards apply to proposed applications of data in specific contexts, and for adhering to these to prevent potential violations of laws and rights.

- Characteristics of humanitarian organizations that use data responsibly:
  - **Responsibility as a process, not only a policy:** Responsible use of data is an integrated and iterative set of processes with the necessary capacities to support them.
  - **"Bright line" rules and "red button" responses:** Organizations develop and adhere to clear rules before they deploy data-based interventions. They identify and plan to address moments requiring the immediate cessation of a project.
  - **Transparency:** Organizations intentionally capture and share information about their projects, critical incidents and share best practices.
  - **Feedback loops:** Organizations responsibly using data establish feedback loops with key stakeholders at each stage of their project to help ensure accountability to recipients. They also monitor data practices throughout the project's lifecycle.

INTRODUCTION

Data are changing the face of humanitarian response, providing unprecedented opportunities to innovate and to better assist affected populations. Whether using social media to identify needs in a natural disaster such as Typhoon Hagupit (2014), or deploying mobile survey tools in Nepal (2015)[1] for faster post-earthquake assessments, the possibilities of these technologies are numerous and profound.

However, the use of these new data has also raised new risks and challenges for collecting, analysing, aggregating and sharing data. Because affected populations can be harmed as well as helped by the use of data, frameworks must be established to ensure that humanitarians understand and mitigate risks caused by the use of data. Ensuring adequate data security, ethical standards, and privacy protections is the collective responsibility of the entire humanitarian data ecosystem.

In May 2016, Member States, humanitarians, policy-makers and affected people will gather at the World Humanitarian Summit. This gathering is a unique opportunity to place data responsibility on the global humanitarian agenda. As stated in the report of the Secretary-General for the World Humanitarian Summit, "data and joint analysis must become the bedrock of our action." Articulating and implementing a shared humanitarian vision for the responsible use of data will ensure that this bedrock rests on a solid foundation.

This paper identifies the critical issues humanitarians face as they strive to responsibly use data in operations. It also proposes an initial framework for data responsibility.

The humanitarian data-ecosystem

Humanitarian actors, their partners and affected communities are producing, capturing and accessing growing volumes of digital data about vulnerable populations. This group of data producers, users and consumers together make up a diverse and complex "humanitarian data ecosystem". Digital data flowing through this ecosystem includes mobile phone records, social media posts, satellite imagery, sensor data,

> *"Data and analysis are the starting point for putting people at the centre and moving from a supply-driven approach to one driven by addressing the risks of the most vulnerable."*
>
> **Report of the Secretary-General for the World Humanitarian Summit "One Humanity, Shared Responsibility", 2016**

financial transactions and other streams of data that form an increasingly dense web of information about crisis-affected communities and contexts.

While these data streams provide a range of insights and inferences, the most critical type of data produced by the ecosystem is information about the time and place-specific activities of affected populations, i.e. "spatiotemporal metadata". For example, call detail records (CDRs)[2] from mobile phones and crowd maps can be used to understand population movements. However, these same data streams can harm the very populations humanitarians seek to serve. Identifying the risks of these new tools and techniques and codifying best practices, is a major task that the humanitarian community is only beginning to take up.

Insights from digital data in humanitarian response

- Calls to radio stations can reveal local perceptions of international aid.
- Social media messages and online news outlets can enhance understanding of local need.
- Local social media can yield insights about capacities in hospitals and other infrastructure.
- Call detail records can supplement local knowledge on population movements to help plan relief distribution.

---

1 World Humanitarian Data and Trends 2015, Office for the Coordination of Humanitarian Affairs. Available from www.unocha.org/humanity360 Nepal Earthquake 2015, Flowminder (2015). Available from http://www.flowminder.org/case-studies/nepal-earthquake-2015

2 Call detail records (CDRs) are a digital record of the attributes of a certain instance of a telecommunication transaction (such as the start time or duration of a call), but not the content. For more information, see "Mobile phone network data for development", UN Global Pulse (2013). Available from http://www.unglobalpulse.org/sites/default/files/Mobile%20Data%20for%20Development%20Primer_Oct2013.pdf

USING DATA IN HUMANITARIAN RESPONSE: POTENTIAL RISKS AND HARMS

An increasing number of humanitarian groups are attempting to integrate data into their operations.[3] For some, the embrace of data signals a more potent form of humanitarianism, with data analysis and new digital tools providing an opportunity for more targeted and efficient humanitarian relief.

This approach holds promise, but there are also significant risks at every stage of the data lifecycle, from collection to processing to using data in operations. These include many traditional risks involved in data collection and use, such as the disclosure of personal data. There are also risks specific to the humanitarian context, such as security challenges for those collecting and handling data in volatile contexts. Civilians who are already vulnerable following conflicts or other disasters can experience new trauma and face new threats if their personal information is exploited or disclosed to those who can misuse it. These populations can also become more vulnerable if new technologies, such as algorithms, exclude their participation in recovery efforts. Understanding these risks

and potential harms will help mitigate them and equip humanitarians to use data more responsibly across contexts and operations.

Sensitive data

Across sectors, the collection, aggregation and sharing of sensitive data poses risks. However, the disclosure of personal, demographic or other sensitive data in the humanitarian space can have particularly serious ramifications. At the onset, the conditions under which data are collected in the field are complex. The ambiguity and potential risks can be particularly problematic in fast-moving crisis or disaster situations. Fear of data misuse can prevent individuals from exercising their fundamental rights or increase the risks that such rights be denied.[4] Over time, inappropriate uses of data can have ripple effects, with concerns over security, confidentiality and privacy, among others, expanding resistance to data sharing and undermining humanitarian work in the long run.[5]

---

3 Transforming operations to include data analytics requires more than an abstract idea of the potential value of humanitarian data use. A forthcoming Think Brief on data preparedness will explore steps organizations can take to benefit from the use of data rather than be overwhelmed by a "data deluge", especially in times of crisis.

4 United Nations High Commissioner for Refugees, "The Right to Privacy in the Digital Age", A/HRC/27/37 (2013): "Other rights, such as the right to health, may also be affected by digital surveillance practices, for example where an individual refrains from seeking or communicating sensitive health-related information for fear that his or her anonymity may be compromised …" ; "[t]here are credible indications to suggest that digital technologies have been used to gather information that has then led to torture and other ill-treatment"

5 Stauffacher, Hattotuwa and Weeks, "The potential and challenges of open data for crisis information management and aid efficiency", ICT4 Peace Foundation (2012). Available from://ict4peace.org/wp-content/uploads/2012/03/The-potential-and-challenges-of-open-data-for-crisis-information-management-and-aid-efficiency.pdf

---

Figure 1. Which areas have the most potential to improve emergency response?

Improved use of ICTs (mobile phones, internet and social media)

Eastern and Southern Africa | Latin America and the Caribbean | Middle East and North Africa

Improved logistics

Eastern and Southern Africa | Latin America and the Caribbean | Middle East and North Africa

Better communication/ participation of affected communities

Eastern and Southern Africa | Latin America and the Caribbean | Middle East and North Africa

The chart shows the results of regional surveys conducted in the lead- up to the World Humanitarian Summit.
Source: World Humanitarian Data and Trends 2015

"Collecting, analysing, aggregating and sharing data, with adequate security and privacy protection, must be understood as a collective obligation".

Report of the Secretary-General for the World Humanitarian Summit "One Humanity, Shared Responsibility", 2016

Inappropriately collecting, storing or sharing sensitive data can affect both individuals and their communities, which can be exploited or made more vulnerable as the result of how data is used. These issues became relevant during the response to the 2015 Ebola crisis in West Africa. Attempts to use anonymized CDRs and other types of data to track the spread of the virus failed due to the lack of privacy protection standards, guidelines, data sharing mechanisms and anonymization techniques. In contrast, the use of anonymized mobile data in Nepal, before and after the 2015 earthquake, was one of the success cases where data helped humanitarians deliver critical aid to displaced populations.[6] In the absence of minimum data responsibility guidelines, concerns have been raised about ad-hoc sharing practices, privacy, ownership of data and the potential to harm an already vulnerable population.
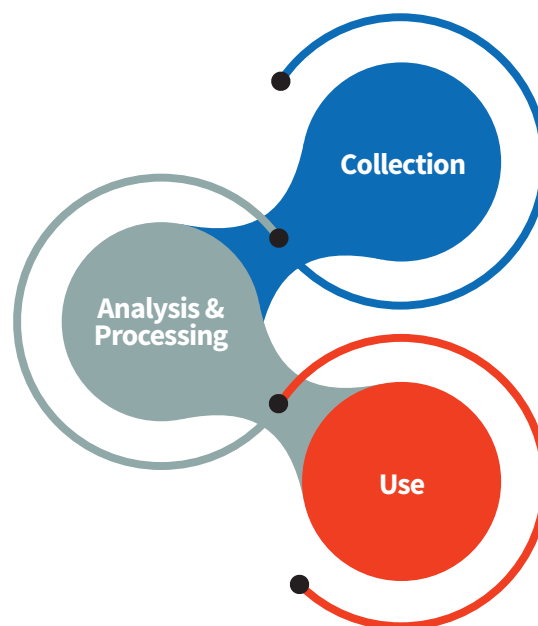
Crowdsourced data

New technologies allow humanitarian organizations to leverage crowdsourced and other forms of social media and volunteered information, often from places otherwise difficult to reach. By working with members of the public who volunteer data or their data processing skills, organizations can deploy digital networks to complement their response in emergencies and crises. Such an approach may provide timely and on-the-ground data, while empowering citizens to participate in relief and aid efforts. For example, in the aftermath of the 2010 Haiti earthquake, crowdsourced reports were used to build a map of information about the disaster.[7]

Figure 2. The humanitarian data lifecycle

Nonetheless, crowdsourced information can have incomplete and inaccurate data, which may compromise the analysis produced. In part, the quality problem stems from the very factors that can make crowdsourced data a potent mechanism: the ease and lack of barriers to participation. Crowdsourced data often contains considerable "noise" and useless information, for example, when it is sourced from spam, malicious and vested users, commercial information or rumors.[8] It can also be hard to verify the accuracy of data provided, since much of it comes from secondary sources. Crowdsourced data must be used with discretion to complement other sources of information when planning relief operations.

Bias and digital discrimination

Social, economic and cultural biases in the way data is generated, collected, processed and analysed can lead to oversights and assumptions that further embed social and economic inequalities within affected communities. Relief efforts based on data can bypass or underserve population groups

6 Nepal Earthquake 2015, Flowminder (2015). Available from http://www.flowminder.org/case-studies/nepal-earthquake-2015

7 Zook, Graham, Shelton and Gorman, "Volunteered geographic information and crowdsourcing disaster relief: a case study of the Haitian earthquake", World Medical & Health Policy (2010). Available from https://www.researchgate.net/profile/Matthew_Zook/publication/239324066_Volunteered_Geographic_Information_and_Crowdsourcing_Disaster_Relief_A_Case_Study_of_the_Haitian_Earthquake/links/0f31752ef9ede4411c000000.pdf

8 Horler, "Crowdsourcing in the humanitarian network – an analysis of the literature" (2014). Available from https://irevolution.files.wordpress.com/2014/11/bachelor_thesis_raphael_hc3b6rler.pdf
Reliefweb, "Q+A: Crisis mappers look at Haiti lessons and beyond" (2010). Available from http://reliefweb.int/report/haiti/qa-crisis-mappers-look-haiti-lessons-and-beyond.

that lack access to or proficiency with digital technologies. This bias poses particular problems in the communications and advocacy stage of the data cycle, where information may misrepresent groups affected by conflict or disaster.

The fragmented and uneven recovery following Typhoon Haiyan in the Philippines (2013), which seemed to reinforce existing socio-economic inequalities, is a good example.[9] Researchers found that victims from low socio-economic backgrounds had limited or no access to the internet and other media, and their digital literacy levels were correspondingly very low. This constraint contributed to their slow recovery compared to middle-income families who were able to navigate the media landscape and tools offered by digital data and technologies. Organizations that rely significantly on technology and data without appropriate human intervention and skills, risk "digital discrimination" that not only hampers relief efforts in the near-term, but can increase inequalities in the long run.[10]

9   Madianou, "Digital Inequality and Second-Order Disasters: Social Media in the Typhoon Haiyan Recovery", Social Media + Society (2015). Available from http://sms.sagepub.com/content/1/2/2056305115603386.full.pdf+html.

10 Stauffacher, Hattotuwa and Weeks, "The potential and challenges of open data for crisis information management and aid efficiency", ICT4 Peace Foundation (2012). Available from://ict4peace.org/wp-content/uploads/2012/03/The-potential-and-challenges-of-open-data-for-crisis-information-management-and-aid-efficiency.pdf

DATA RESPONSIBILITY IN PRACTICE: CASE STUDIES

As the role and operations of humanitarian actors transform because of digital data, organizations must develop data risk mitigation. Using data responsibly goes beyond the concepts of "data privacy" and "data protection". A framework for data responsibility implies at minimum a four-step process:

1. Evaluating the context and purpose within which data is being generated and shared
2. Taking inventory of the data and how it is stored
3. Pre-identifying risks and harms associated with a proposed use of data before data is collected
4. Developing strategies to mitigate those risks.[11]

Figure 3. A practical guide for the four- step data responsibility framework: questions to consider

1. Evaluate the context.
• What is the anticipated benefit of using the data?
• Who has access to the data?
• What constitutes the actionable information for a potential perpetrator?
• What could set off the threat to the data being used inappropriately?

2. Take inventory of the data and how it is stored.
• Where is the data? Is it stored locally or hosted by a third party?
• Where could the data be housed later?
• Who might gain access to the data in the future?
• Is data access being monitored?

3. Pre-identify risks and harms.
• Could the data be combined with other data sources to expose individuals?
• What happens if the raw data is publicly released?
• What happens if the organization is maliciously breached?
• Who are the spoilers who could use data to deliberataley harm affected populations?
• Can the data analysis be misinterpreted to the detriment of the programme?

4. Develop risk mitigation strategies.
• Developing data handling policies and scenarios with decision trees.
• Implement access controls to the data.
• Adopt technological solutions.
• Train staff.

11 The four-step data responsibility framework is based on the authors' work and it is presented as an option for the humanitarian data community to consider. The list of questions included in the practical guide is not exhaustive. For more information, see Telford and Verhulst, "A framework for understanding data risk". Understanding Risk Forum (2016). Available from https://understandrisk.org/a-framework-for-understanding-data-risk.

Below follow three case studies, which the authors have documented from their own work, that show how organizations adopted risk mitigation measures in data-driven projects.

CASE STUDY 1:
CASH TRANSACTION ANALYSIS IN LEBANON
WORLD FOOD PROGRAMME AND LEIDEN UNIVERSITY CENTRE FOR INNOVATION

PROJECT DESCRIPTION

To increase the timeliness and efficiency of its operations, the World Food Programme (WFP) is scaling up alternatives to traditional food delivery. One innovative program was started in Lebanon in September 2013. Instead of food packages, WFP distributed "e-vouchers" to over 600,000 eligible refugees. These e-vouchers can be used to buy food at over 400 local shops nationwide. Each month, WFP reloads the cards with a total of US$15 million to $20 million.

DATA OPPORTUNITIES

Transactions to and from these e-vouchers produce data about the amount of money spent or received, and at which shop the money is spent. The e-voucher data does not include information that directly identifies individuals e.g. names, dates of birth or addresses. However, this data can reveal spending patterns over time and by location. This approach has the potential to provide WFP with enhanced insight into the behaviour of their beneficiary community, most notably into the mobility patterns of the refugee communities within Lebanon. This information could improve WFP's programs, allowing more responsive humanitarian assistance.

Data produced by e-vouchers can also help detect fraud or other unexpected behavior, by registering relevant anomalies in spending amounts, patterns and locations.

RISKS AND HARMS

E-voucher transaction data may be sensitive. In its rawest form, it contains a detailed record of beneficiary spending. A leak of such data can harm people by exacerbating their vulnerability in a crisis situation.

RISK MITIGATION MEASURES

• WFP and Leiden University signed a non-disclosure agreement, limiting access to sensitive transaction data.

• Before transferring data to Leiden University, the e-voucher transaction data was de-identified and anonymized twice, first by the WFP Lebanon Country Office and then by WFP headquarters.

• Two levels of anonymization and encryption were applied to any sensitive attributes in the dataset, such as shop location and card numbers, which were either deleted or replaced by randomly generated identification numbers.

• Data was transferred from WFP to Leiden via a secure, encrypted method and stored the data on encrypted hard-drives.

• Prior to presenting the results, WFP and Leiden discussed them with the WFP country office, to ensure that the presentation was checked for contextual sensitivities and that no potentially harmful information was revealed.

Figure 4. Using e-vouchers to purchase food in Lebanon.
Credit: WFP/Rein Skullerud

CASE STUDY 2:
CALL DETAIL RECORDS FOR MAPPING MALARIA
FLOWMINDER

PROJECT DESCRIPTION

Renewed calls for global malaria eradication have prompted many countries with low levels of transmission to focus their national malaria plans on elimination. In pre-elimination settings, the movement of infected people becomes particularly important to prevent the introduction of live cases into receptive areas. In designing elimination strategies, countries need to assess malaria infection movement patterns to efficiently design intervention and surveillance approaches, and limit the risks of resurgence post-elimination. Flowminder, a data-focused NGO, has used call detail records since2008 to support national efforts on malaria eradication in Tanzania, Kenya and Namibia.[12]

DATA OPPORTUNITIES

When integrated with malaria risk maps, gridded population datasets and mathematical transmission models, anonymized call detail records (CDRs) can help track and quantify population movement.

RISKS AND HARMS

Using CDRs poses risks to the privacy of mobile phone users in addition to raising commercial concerns for operators. CDRs should also be used in compliance with local regulations.

RISK MITIGATION MEASURES

• Before sharing CDRs, operators assigned each individual user a unique code to ensure anonymity and that the records could only be used for studying general patterns of mobility.

• No personal details (such as names and addresses) were disclosed.

• Flowminder developed close working relationship and established formal data sharing agreements with relevant Ministries of Health and international organizations such as the Clinton Health Access Initiative.

• The organization worked with mobile operators and the global mobile industry association (GSMA) to help develop industry guidelines on privacy protection.[13]

---

12 For further information, see: http://www.flowminder.org/publications/the-use-of-mobile-phone-data-for-the-estimation-of-the-travel-patterns-and-imported-plasmodium-falciparum-rates-among-zanzibar-residents; https://www.technologyreview.com/s/429569/how-cell-phone-data-could-slow-the-spread-of-malaria/; http://www.flowminder.org/case-studies/guiding-malaria-elimination-strategies-in-namibia
13 Guidelines can be accessed through http://www.gsma.com/mobilefordevelopment/wp-content/uploads/2014/11/GSMA-Guidelines-on-protecting-privacy-in-the-use-of-mobile-phone-data-for-responding-to-the-Ebola-outbreak-_October-2014.pdf,

CASE STUDY 3:
SATELLITE IMAGERY ANALYSIS FOR EARLY WARNING
HARVARD HUMANITARIAN INITIATIVE

PROJECT DESCRIPTION

In December of 2010, the Harvard Humanitarian Initiative (HHI) joined the Satellite Sentinel Project (SSP) to design and manage the day-to-day operations for the SSP consortium. The project monitored the border region of Sudan and South Sudan to detect threats to the security of the civilian population through the analysis of high-resolution satellite imagery and reports from the ground. Over 18 months, HHI reported on troop massing and movements and potential attacks on civilian dwellings. HHI also documented evidence of alleged mass atrocity crimes, including mass graves.

DATA OPPORTUNITIES

The project showed how access to high-resolution satellite imagery can improve situational awareness and provide unique, otherwise unavailable, insights into areas where access may impossible.

RISKS AND HARMS

• *Potential advantage to armed actors:* The HHI team constantly had to manage the risk of providing potential advantages to various armed actors party to the conflict in Sudan through the release of satellite imagery. While the HHI team took specific steps, such as removing all coordinates and editing well-known landmarks out of images, the threat could never be fully mitigated.

• *Early warning:* No civil society group had ever used high-resolution satellite imagery before to provide conflict-affected populations with early warning of potential threats to their security. Thus, HHI had no accepted framework for responsibly releasing data in near real-time and constantly struggled with difficult decisions about the risk and benefit of releasing data publicly.

• *Risk analysis:* As the project evolved, the impact of the collection of imagery and the release of reports on many different types of actors, on the ground and at the international level, became increasingly consequential yet unpredictable. Thus, HHI could no longer assess the potential risks the project was exacerbating, nor could it causally determine when it either mitigated threats or magnified them.

RISK MITIGATION MEASURES

HHI felt that there was no pathway towards responsibly mitigating these risks and left the SSP partnership after 18 months of leading operations. HHI subsequently launched the Signal Program on Human Security and Technology in 2012 to research on the safe application of remote sensing and other ICTs in the humanitarian and human rights context, with the goal of developing common operational doctrines and ethical standards to address the issues faced during SSP.

Figure 5. Satellite imagery collected on 17 June 2011, shows a temporary camp for internally displaced persons constructed outside of the northern wall of the UN Mission in Sudan (UNMIS) compound in Kadugli. *Source: Digital Globe, June 2011*

INTEGRATING DATA RESPONSIBILITY INTO HUMANITARIAN ACTION: MINIMUM STANDARDS AND CORE CAPACITIES

Humanitarians should not be collecting and analysing data without minimum standards for ensuring this work is done responsibly.[14] In the absence of common minimum standards, organizations have developed their own situational standards, such as the International Committee of the Red Cross' *Rules on personal data protection,* the Standby Taskforce's *Code of Conduct* and the Humanitarian Data Exchange's *Terms of Service*.[15] The UN has adopted the *Guidelines for the Regulation of Computerized Personal Data Files* and has recognized that the principles of data protection should apply to international organizations.[16]

However, this fragmented approach has impeded the development of comprehensive and shared best practices and data-specific protection standards in humanitarian situations. The adoption of minimum standards for data responsibility, together with the capacity to implement them, will better ensure that humanitarians use data at the highest professional standard while safeguarding the central tenets of humanitarian action: humanity, neutrality, impartiality and independence.[17]

---

14 Raymond and Harrity, "Addressing the 'doctrine gap': professionalising the use of Information Communication Technologies in humanitarian action" (2016). Available from http://odihpn.org/magazine/addressing-the-doctrine-gap-professionalising-the-use-of-information-communication-technologies-in-humanitarian-action/

15 For more information, see https://shop.icrc.org/publications/international-humanitarian-law/icrc-rules-on-personal-data-protection.html, http://www.standbytaskforce.org/about-us/our-code-of-conduct/ and https://data.hdx.rwlabs.org/about/terms

16 Economic and Social Council, "Revised version of the guidelines for the regulation of computerized personal data files prepared by Mr. Louis Joinet, Special Rapporteur", E/CN. 4/1990/72 (1990). Available from http://www.un.org/Docs/journal/asp/ws.asp?m=E/CN.4/1990/72

17 Raymond and Card, "Applying Humanitarian Principles to Current Uses of Information Communication Technologies: Gaps in Doctrine and Challenges to Practice", Harvard Humanitarian Initiative (2015). Available from http://hhi.harvard.edu/publications/applying-humanitarian-principles-current-uses-information-communication-technologies.

Key components of minimum standards for handling data responsibly

The four-step process for data responsibility described above is a practical guide that a project or an organization can use today. But humanitarian actors must still come together to develop a comprehensive and consistent framework for data responsibility across the sector. In doing so, they should ensure that this framework is built on a set of minimum standards that would encompass: identifying need, assessing core competencies and capacities, managing risk to vulnerable populations, and ensuring adherence to legal and ethical regulations.

- **Identifying the need:** Like all forms of humanitarian assistance, humanitarian action using data must be undertaken only when clearly identified needs require these forms of interventions. Data should never be used simply because they can be; their purpose should be clear and defined.

- **Assessing core competencies and capacities:** Minimum standards are essential for determining whether humanitarian actors have the core competencies and capacity to use data responsibly, such as secure infrastructure, data sharing codes of conduct and guidelines to mitigate harm. Humanitarian actors often make this assessment in the middle of a project, without examples of past practice. Making this assessment in the midst of operations, rather than during the design stage of the project, is neither responsible nor sustainable.

- **Managing risk to vulnerable populations:** The risks posed by the use and non-use of data by humanitarian actors will vary depending on context. A data-supported response to a natural disaster can pose a risk profile and affect the vulnerability of populations differently than one in a complex disaster. Minimum standards allow humanitarian actors to know whether they are appropriately identifying and managing data risks proactively across contexts and ensuring that risks and benefits of using data are proportionate to the need and are never excessive.

- **Adherence to legal and ethical regulations:** Any humanitarian data collection must adhere to applicable domestic and international legal

regulations, as well as accepted ethical guidelines. At present, the regulatory landscape is fragmented, creating difficulties in deciding what law applies in various cross-border humanitarian contexts. The humanitarian data ecosystem would benefit from a unified, globally accepted approach to data responsibility. In this networked age, humanitarians will also need to ensure that data protection principles take into account the context and nature of humanitarian work and are regularly updated to address the challenges presented by the evolving data landscape.

Characteristics of humanitarian organizations that use data responsibly

Once developed, minimum standards will only be as effective as the capacity and commitment of organizations to implement them, which will require the following:

• **Responsibility as a process:** Responsible use of data is not simply a policy to be agreed in the initial phase. It is an integrated and iterative set of processes with the necessary capacities to support them throughout a humanitarian operation. Each of the above minimum standards require trained personnel to design and implement how organizations will execute and evaluate them at every stage of a project. At minimum, organizations should implement four steps in the data responsibility process: (1) evaluating context, (2) taking inventory of the data and how it is stored, (3) identifying risks and harms associated with the use of data and (4) developing mitigation strategies.

• **"Bright line" rules and "red button"** responses: Organizations need the capacity to develop and adhere to "bright line" rules before they deploy data and ICT-based interventions. Examples include clear restrictions on what data should not be collected, shared or otherwise used. Relatedly, groups need the capacity to identify and plan to address "red button" moments that would require the immediate cessation of a project. Developing plans before these moments occur enables organizations to react effectively.

• **Transparency:** Few organizations submit their use of data to transparent public review and scrutiny. Groups deploying data-based interventions intentionally capture and publicly share information about their own projects as well as critical incidents, such as when a specific population is harmed or infrastructure is compromised. Responsible data users also share their best practices with other organizations.

• **Feedback loops:** Organizations responsibly using data establish feedback loops with key stakeholders, in particular affected populations and other organizations in a specific data ecosystem. Given that the tempo of data-related operations is often high, and that dynamics can change quickly, establishing feedback loops and the capacity to manage them is essential before an activity begins. Organizations also have internal feedback loops, to monitor data practices throughout the project's lifecycle.

Figure 6. Data responsability in action
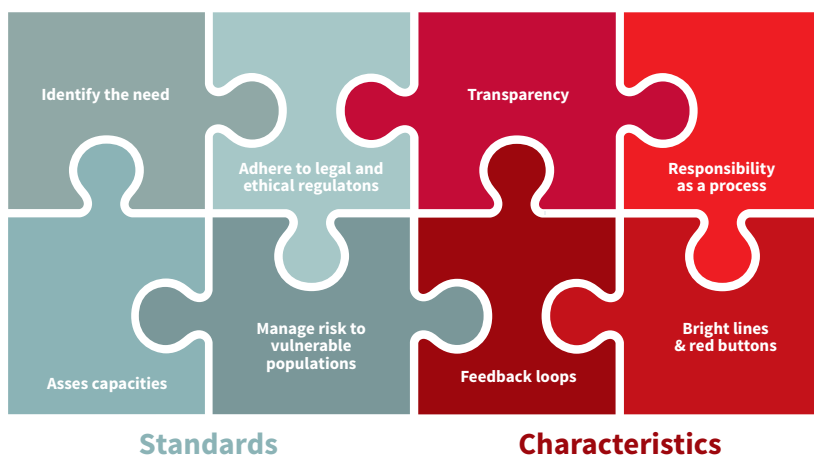
CONCLUSION

Digital data offers new opportunities to the humanitarian sector, such as increased situational awareness, better communication with affected communities and improved programming and targeting of relief efforts. However, given the diversity and complexity of the humanitarian data ecosystem, the potential of humanitarian data can only be harnessed if humanitarian actors collectively take responsibility to avoid secondary crises caused by irresponsible data use. Integrating data responsibility into operations will require a change in organizational culture. A starting point for a responsible data approach will be by adopting minimum core standards and characteristics of responsible data use, as outlined in the previous section. Investments must also be made into training, equipping humanitarians to use data responsibly for decision-making and developing data doctrine for protecting vulnerable populations. Importantly, participants in the humanitarian data ecosystem will need to look beyond their own organization to ensure that their broader environment is adhering to the principles and practices of humanitarian data responsibility. Without a holistic, ecosystem-wide approach, humanitarian data use will only be as responsible as the weakest link in the data chain.

Data: 1. Systematic information about the attributes of the entities contained in some well-defined aggregate, such as the person records produced from a census or survey, or the birth or death records produced from a civil registration system. Data of this type may be referred to as "micro" or "unit record" or "individual level" data. Data in this sense is synonymous with data set. Though the information contained on records may be quantitative, the definition of the aggregate is necessarily textual, so that data always involves a qualitative element as well. 2. Numeric information derived from such data, such as a table of numbers of persons in various age-sex groups derived from population census data. Data of this kind may be referred to as "macro" or "aggregate" or "tabular" data. In the terminology of the field of statistics, a statistic. 3. Quantitative information in general, including estimates, indicators and statistics of all kinds. (Source: UNData Glsosary http://data.un.org/Glossary.aspx)

Big data: Big data is an umbrella term referring to the large amounts of digital data continually generated by the global population. Big data can be privately owned or have varying levels of access control. (Source: UN GlobalPulse (2013). Big data for development: a primer)

Demographic data: Similar to personal data, demographic data means information that can be used to identify a population or community based on one or more factors, such as socio-economic status, ethnicity, location, language or religion.

Digital data: Discrete representations of quantized values of variables, e.g. the representation of numbers by digits, perhaps with special characters and the "space" character. (Source: United States Department of Commerce – National Telecommunications and Information Administration http://www.its.bldrdoc.gov/

Humanitarian data: 1. Data about the context in which a humanitarian crisis is occurring (e.g., baseline/development data, damage assessments, geospatial data). 2. Data about the people affected by the crisis and their needs. 3. Data about the response by organizations and people seeking to help those who need assistance (Source: OCHA Humanitarian Data Exchange https://data.hdx.rwlabs.org/faq).

Personal data: Personal data means information relating to an identified or identifiable natural person ("data subject"); an identifiable person is one who can be identified, directly or indirectly, in particular by reference to an identification number or to one or more factors specific to his physical, physiological, mental, economic, cultural or social identity (Source: European Union Directive 95/46/EC – The Data Protection Directive).

OCHA Policy Publications

OCHA Policy Studies

World Humanitarian Data and Trends (Annual)

Saving Lives Today and Tomorrow:
Managing the Risk of Humanitarian Crises

Humanitarianism in the Network Age
(including World Humanitarian Data and Trends 2012)

Coordination to Save Lives - History and Emerging Challenges

To Stay and Deliver: Good practice for humanitarians
in complex security environments

OCHA Aide Memoire

Safety and Security for National Humanitarian Workers

Occasional Policy Series

The objective of the series is to stimulate a debate and dialogue, or to generate feedback, views and advice. These publications area available online through http://www.unocha.org/about-us/publications.

#1 Global Challenges and their Impact on International Humanitarian Action (January 2010)

#2 Climate Change and Humanitarian Action: Key Emerging Trends and Challenges (August 2009)

#3 Energy Security and Humanitarian Action: Key Emerging Trends and Challenges (September 2010)

#4 Water Scarcity and Humanitarian Action: Key Emerging Trends and Challenges (September 2010)

#5 OCHA Evaluations Synthesis Report 2010 (February 2011)

#6 OCHA and Slow-onset Emergencies (April 2011)

#7 Cross-Border Operations: A Legal Perspective (forthcoming, 2015)

#8 Security Council Practice on the Protection of Civilians: Analysis of Key Normative Trends (2014)

#9 Humanitarian Innovation: The State of the Art (2014)

#10 Help from Above: Unmanned Aerial vehicles in Humanitarian Response (2014)

#11 Humanitarianism in the Age of Cyber Warfare: The Principled and Secure Use of Information in Humanitarian Emergencies (2014)

#12 Hashtag Standards for Emergencies (2014)

#13 Interoperability: humanitarian action in a shared space (July 2015)

#14 Shrinking the supply chain: Hyperlocal manufacturing and 3D printing in humanitarian response (July 2015)

#15 An end in sight: multi-year planning to meet and reduce humanitarian needs in protracted crises (July 2015)

#16 Crowdfunding for emergencies (August 2015)

#17 Understanding the climate-conflict nexus from a humanitarian perspective: a new quantitative approach (May 2016)

Join us

unocha.org

reliefweb.int

data.hdx.rwlabs.org

worldhumanitariansummit.org

fts.unocha.org

@UNOCHA & @ochapolicy

facebook.com/unocha

instagram.com/un_ocha

medium.com/@UNOCHA

youtube.com/ochafilms

OCHA

United Nations
Office for the Coordination
of Humanitarian Affairs

THINK
BRIEF