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ENCOURAGING DATA RESPONSIBILITY IN THE HUMANITARIAN SECTOR

Applied Policy Project

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**Prepared for:
The Centre for Humanitarian Data**

centre for humdata

Disclaimer

The author conducted this study as part of the program of professional education at the Frank Batten School of Leadership and Public Policy, University of Virginia. This paper is submitted in partial fulfilment of the course requirements for the Master of Public Policy degree. The judgments and conclusions are solely those of the author, and are not necessarily endorsed by the Batten School, by the University of Virginia, or by any other entity.

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Honour Statement

“On my honour as a student, I have neither given nor received unauthorized aid on this assignment.” – Code of Honour, University of Virginia



Cover Background Source: The Centre for Humanitarian Data

Table of Contents

List of Tables and Figures	4
Acronyms and Abbreviations	5
Key Terms	6
Executive Summary	7
Problem Definition.....	8
Background	9
The Evolution of Data Sharing: From Big Data to Open Data	9
The Challenges of Open Data: Recognizing Potential Harms.....	11
Recognizing Data Responsibility.....	12
The Next Step: OCHA's Data Responsibility Guidelines	13
Using Behavioural Science to Further the Trend Towards Collective Data Responsibility	14
Introduction to Social Norms	14
Emphasizing Collective Responsibility and a Shared Group Identity	15
The Role of Leadership in Norm Setting.....	15
Towards Solutions: Awareness Campaigns	16
Criteria	17
Alternatives.....	19
Alternative 1: Implement a data responsibility campaign	19
Alternative 2: Develop informal guidance documents	19
Alternative 3: Designate a part-time data responsibility officer.....	20
Evaluation of Alternatives	21
Outcomes Matrix.....	24
Consideration of Trade-offs	24
Recommendation	26
Implementation Strategy.....	26
Building on Open Government Data Initiatives.....	26
Data Visualization: Humanitarian Data Exchange Activity	27
Reducing Adoption Barriers	29
References	31
Appendix A: Summary Tables Applying Behavioural Science to Encourage Data Responsibility ...	36
Appendix B: The Centre for Humanitarian Data's Mission Statement.....	40
Appendix C: Cost Estimates for Evaluation	41
Appendix D: Recommendation and Implementation Handout.....	43
Appendix E: Data Analysis and Visualization Methodology.....	44

List of Tables and Figures

Table 1: Notable Examples of Open Data Facilitating Humanitarian Response.....	10
Table 2: Summary Evaluation of Implementing a Data Responsibility Campaign.....	22
Table 3: Summary Evaluation of Developing Informal Guidance Documents	23
Table 4: Summary Evaluation of Designating a Part-Time Data Responsibility Officer	23
Table 5: Outcomes Matrix	24
Table 6: Cost Breakdown of One Workshop	41
Table A.1: Examples of basic methods at the individual level	36
Table A.2: Examples of methods used to change awareness and risk perception	37
Table A.3: Examples of methods used to improve skills, capability, and self-efficacy.....	38
Table A.4: Examples of basic methods at the organizational level	39
Figure 1: Status of National Data Protection and Privacy Legislation	12
Figure 2: OCHA’s Data Management Process	18
Figure 3: HDX Activity Around the Release of the Working Draft	27
Figure 4: Source Organizations by Total Number of Datasets Uploaded.....	28
Figure 5: Total Number of Datasets Uploaded by Source Organization and Location	28

Acronyms and Abbreviations

API	Application Programming Interface
CaLP	Cash Learning Partnership
Centre	Centre for Humanitarian Data
CTP	Cash Transfer Programming
DRO	Data Responsibility Officer
HDX	Humanitarian Data Exchange
IATI	International Aid Transparency Initiative
ICRC	International Committee of the Red Cross
GDPR	European Union's General Data Protection Regulation
NGO	Non-governmental organization
OCHA	United Nations Office for the Coordination of Humanitarian Affairs
OGD	Open government data
PI	Privacy International
UNHCR	United Nations High Commissioner for Refugees
WFP	World Food Programme

Key Terms

Big data Large, complex datasets that go beyond the capabilities of people and traditional, desktop software to capture, store, manage, and analyse in their entirety (Manyika, 2011)

Collective self-efficacy A group's shared belief in its capabilities to attain their goals and accomplish desired tasks (Bandura, 1986)

Contributing organization An organization that uploads data to HDX

Data minimization The idea that organizations should collect only the amount of data required to accomplish the desired task (GDPR, 2016)

Data responsibility A set of principles, processes, and tools that support the safe, ethical, and effective management of data in humanitarian response (Raymond et al., 2016)

Humanitarian data Data about 1) the context in which a humanitarian crisis is occurring, 2) the people affected by the crisis and their needs, 3) the response by organizations and people seeking to help those who need assistance (Humanitarian Data Exchange, 2019)

Open data Data that anyone can access, use, and share (European Union, 2019)

Sensitive data Data that is likely to lead to harm when exposed (OCHA, 2019)

Executive Summary

As the humanitarian community has become more data-driven and collaborative, data sharing practices have rapidly evolved. This momentum is in part facilitated by the growing use of open data portals such as the Humanitarian Data Exchange (HDX). Since its creation, HDX has collected almost 9,000 datasets, thereby facilitating better mobilization of efforts in crises ranging from the 2014 Ebola Outbreak to the 2019 Cyclone Idai. These efforts accelerate the positive benefits of using data as a force for good.

Despite these benefits, greater use of HDX highlights the capacity gap to ensure proper data protection for affected populations. In fact, across OCHA offices and sections globally, less than 20 percent of staff who work with data indicate that they have guidance for handling personal or sensitive data (OCHA, 2019). To address this gap, the Centre for Humanitarian Data (“the Centre”), on behalf of OCHA, released a working draft of their Data Responsibility Guidelines (“the Guidelines”) in March 2019. These provide practical guidance on how to manage data responsibly in all stages of a humanitarian response, taking into account the broad context and nature of this work.

This guidance is more broadly applicable to the rest of the humanitarian community too. In order to increase the uptake and adoption of the Guidelines, this analysis seeks to leverage organizational change to encourage data responsibility in the humanitarian sector in the period after the official release of the Guidelines. In doing so, it evaluates options that aim to address the specific barriers that exist for responsible data use, focusing specifically on solutions that the Centre for Humanitarian Data can implement. It proposes three options:

1. Implement a formalized data responsibility campaign to raise awareness
2. Develop informal guidance documents to provide specialized best practices
3. Designate a part-time data responsibility officer to consult contributing organizations

This report uses four criteria – *reach, cost, effectiveness, and efficiency* – to analyse the projected outcomes of the three alternatives. A leading solution would reach a broad range of organizations at low cost to the Centre, while increasing uptake of responsible data practices by humanitarian organizations and minimizing added time to the data management process.

Ultimately, this report recommends **Alternative 1, implementing a data responsibility campaign**, to supplement the official release of the Guidelines. This campaign seeks community mobilization by raising awareness of the Guidelines and responsible data use. In practice, it includes online webinars and in-person workshops with a target audience of data-handling representatives from humanitarian organizations. This report further recommends that the other two alternatives should supplement the implementation of this campaign on a needs basis. In the event that humanitarian organizations require further services, the Centre can develop informal guidance notes and templates, and designate a data responsibility officer to provide direct consultations.

Problem Definition

One in 70 people worldwide today is affected by a crisis (OCHA, 2019). In order to aid these individuals, humanitarian response today relies on an ever-increasing amount of data. However, as organizations process increasingly large volumes of data on affected populations, they must recognize and mitigate the potential risk to the very individuals they aim to help.

OCHA's Data Responsibility Guidelines aim to address this utility-risk dilemma by providing frameworks and best practices to encourage responsible data use. These guidelines provide a minimum standard for managing data responsibly in all stages of a humanitarian response, taking into account the varying context and uncertain nature of this work.

Insights from the fields of social psychology and behavioural science can inform greater recognition and support for data responsibility among humanitarian actors, by promoting greater uptake and adoption of the Guidelines. **Thus, this analysis seeks to leverage organizational change to encourage data responsibility in the humanitarian sector.**

Background

Data sharing practices have rapidly evolved as the humanitarian community has become more data-driven and collaborative. The following sections provide an overview of the past, present, and future of data sharing in humanitarian action.

The Evolution of Data Sharing: From Big Data to Open Data

The use of data in the humanitarian sector a mere decade ago looked very different from its use today. As the conversation around big data started to develop, partnerships emerged between NGOs, private sector companies, governments, and universities to utilize this data to facilitate better responses. While the international community had systems in place to enable their own coordination, a challenge emerged with coordinating the most acute needs of affected populations themselves in the wake of natural disasters. For example, after the earthquake struck Haiti in 2010, the traditional response system became inadequate as responders could not aggregate the critical information coming directly from the Haitians (Simon, Goldberg, & Adini, 2015; Heinzelman & Waters, 2010). This led to the use of Ushahidi, an open-source crisis-mapping software, to compile crowd-sourced information using social media and text message data. Though this was not the first use of Ushahidi and big data in the field, the fact that over 600 individuals contributed made its use in Haiti a landmark in the history of data sharing within the sector (Heinzelman & Waters, 2010; Norheim-Hagtun & Meier, 2010).

Despite the movement towards increased use of big data, another problem remained: regional, national, and international humanitarian organizations continued to operate in silos. Organizations duplicated data collection efforts, or simply lacked the resources to collect the appropriate data on their own. Conversations around open data initiatives accelerated in other sectors (such as healthcare and government) around this time, which soon led to action around open data within the humanitarian sector.

The United Nations Office for the Coordination of Humanitarian Response (OCHA) launched the Humanitarian Data Exchange (HDX) in 2014. The platform allowed registered organizations to share datasets with one another publicly, thereby promoting collaboration between local and state governments, NGOs, and United Nations agencies. Now in its fifth year of operations, HDX contains over 8,800 datasets from over 200 different organizations (Humanitarian Data Exchange, 2019).

Since its creation, HDX has facilitated better mobilization of efforts in crises ranging from the 2014 Ebola Outbreak to the 2017 Somalia Crisis, accelerating the positive benefits of data sharing in the sector. **Table 1**, below, provides notable examples of open data facilitating response coordination through time, including a few enabled by HDX.

Table 1: Notable Examples of Open Data Facilitating Humanitarian Response

Year	Crisis	Main Data Source(s)	Use of Data	Outcome
2010	Haiti Earthquake	Ushahidi, Blogs, Twitter, Facebook, SMS	Compiled crowd-sourced information about critical needs	Improved coordination of efforts to areas with greatest concentration of need
2011	New Zealand Earthquake	Ushahidi, Twitter, GIS data, open property data, construction plans	Built a comprehensive geospatial and property data set	Reduced impact on response traffic, cost savings from delay avoidances
2014	Jakarta Flood	Twitter, elevation map	Provided real-time information on flooding	Created model to improve response times for those affected by flooding
2014	Ebola Outbreak (West Africa)	HDX	Provided information about how the crisis was affecting farmers	Predicted food shortages to target interventions
2015	Nepal Earthquake	OpenStreetMap collaborators, Kathmandu Living Labs	Created detailed maps of affected areas, including health facilities and road networks	Improved coordination and mobilization of efforts by helping NGOs tailor their response using existing infrastructure
2016	Syrian Refugee Crisis	NetHope, Cisco, The Patterson Foundation	Wi-Fi hotspots and charging stations along migration route	Increased data collection to determine migration flows and needs
2017	Somalia	HDX	Visualized cash distribution across the country	Communicated with partners on use of cash in response

Thus, big data and open data have helped humanitarian organizations better mobilize efforts to aid tens of thousands of people, with the potential only expanding as needs grow.

The Challenges of Open Data: Recognizing Potential Harms

Increased use of open data systems brings increased potential harms if these systems are not appropriately used. These harms generally fall into two main groups:

- 1) disproportionately exploiting particularly vulnerable, underrepresented groups, and
- 2) eroding the trust of affected populations.

“While the misuse of humanitarian... data may be rare, the consequences can be severe.”
– Jonathon Stambolis, CEO, Zenysis Technologies

The former group includes arguments for increasing digital inequalities. One report from 2015 analyses social media use for disaster recovery after Typhoon Haiyan. This analysis found that digital inequalities contributed to the slower post-crisis recovery of low-income families as compared to middle-income families. This was a consequence of limited access to the internet and lower levels of digital literacy (Madianou, 2015). This kind of “digital discrimination” may hamper relief efforts and exacerbate inequalities in the long run (Raymond, Achkar, Verhulst, & Berens, 2016). In turn, this may reduce the legitimacy of overall response operations by undermining the reputation of humanitarian agencies assisting with recovery.

The latter category of harms has not been studied as extensively in an academic context in the realm of crisis response. Thus, I turn to a case of unintended negative consequences of open data in a political context. For example, in the United States, an online tool overlaying open state campaign finance data with Google Maps unexpectedly created privacy concerns. It led to harassment based on political differences and threatened free speech for the identified campaign donors (Graft, Verhulst, & Young, 2016). This example demonstrates the potential harm that may stem from combining data sources to extract meaningful yet harmful insights.

In the humanitarian sector, a similar example would stem from looking at the insights gained from combining cash transfer programming (CTP) transaction data with demographic data from a crisis-affected area. This may enable those with malicious intent to target groups who are relying heavily on this assistance, thereby eroding the trust of affected populations.

To maximize the benefits of shared data, the humanitarian community must recognize that data can help as well as harm already vulnerable populations. The need to navigate the ethical challenges of working with sensitive data increases when considering the improved ease of access to data that open data provides. Further, open data brings with it individual and group privacy concerns, exacerbated by the fact that in this sector, affected populations may not always provide straightforward consent to data collection (Johnson et al., 2017). Thus, protecting affected populations from potential harm must become a collective responsibility of the sector (Raymond et al., 2016).

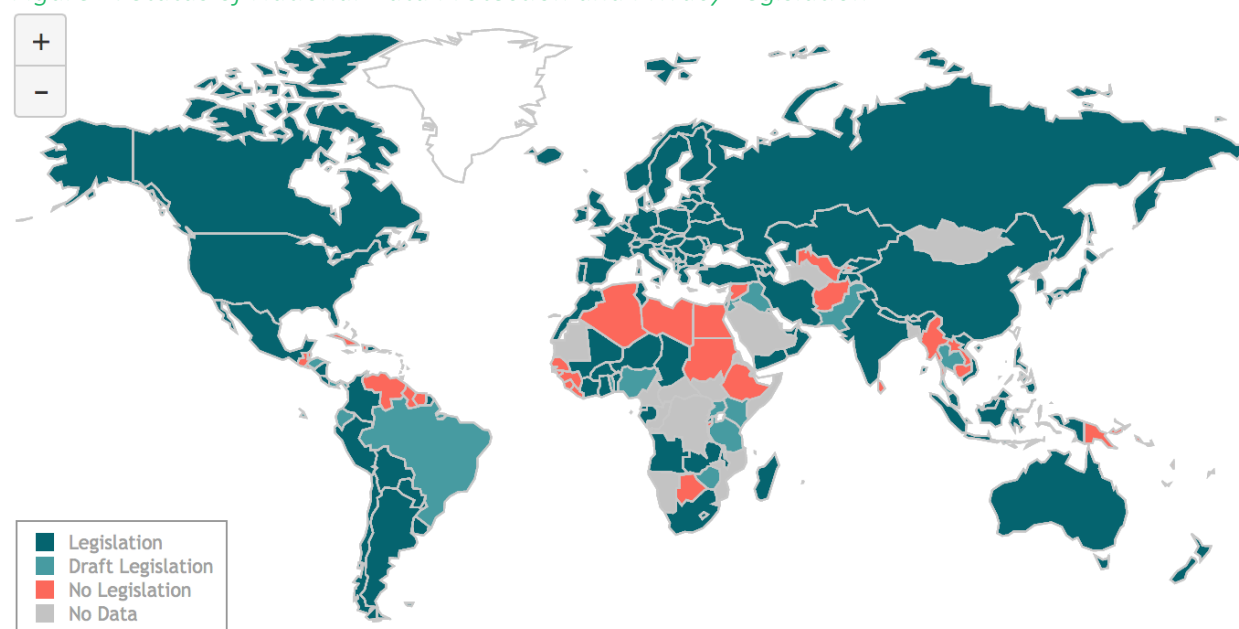
Recognizing Data Responsibility

Despite the aforementioned risks, the humanitarian community requires collaboration and shared data to best focus their efforts. These compounding privacy challenges have led to a stronger push for data responsibility as the sector becomes increasingly data-driven.

Existing International and National Data Protection Benchmarks

The accelerated push for data responsibility in part stems from recent changes to international data standards. Most notably, the adoption of the European Union's General Data Protection Regulation (GDPR) in April 2016 spurred conversations across the globe around data-related rights. GDPR's adoption was ground-breaking as it aimed to enforce and harmonize data privacy laws in the EU for the first time in 20 years. By September 2018, over 120 countries had some form of a data protection bill or law in place at the national level, with another 40 countries with pending legislation (Banisar, 2018). **Figure 1** depicts a more up-to-date status of this legislation across the globe, as of March 2019.

Figure 1: Status of National Data Protection and Privacy Legislation



Source: UNCTAD, 2019

Many less enforceable international guidelines and resolutions have contributed to the growing conversation around mitigating data harm as well. These include WFP's "Guide to Personal Data Protection and Privacy" (released in 2016), ICRC and Brussels Privacy Hub's joint "Handbook on Data Protection in Humanitarian Action" (released in 2017, with a second edition set for early 2020), the IATI Standards (2018), and PI's "Data Protection Guide" (2018) among others.

International organizations in the sector are also increasingly grappling with reinterpreting the right to privacy in the context of open data in this digital age, as addressed in the United Nations General Assembly Resolution 68/167. However, inconsistencies between the existing data protection policies of humanitarian organizations create unclear standards

for the protection of already vulnerable populations in the context of sharing data between these organizations. Wide agreement on a minimum data protection standard will help minimize risk to affected populations by eliminating such inconsistencies and building a shared understanding around responsible data use.

The Next Step: OCHA's Data Responsibility Guidelines

Despite the steps taken by international organizations, the humanitarian community as a whole currently lacks a set of consistent, respected standards. To fill this very gap, the Centre for Humanitarian Data is currently developing OCHA's Data Responsibility Guidelines ("the Guidelines"). These provide practical guidance on how to manage data responsibly in all stages of a humanitarian response, taking into account the broad context and nature of this work.

"The forthcoming OCHA Data Responsibility Guidelines will... [offer] a set of key actions, outputs, and tools for data responsibility at each step in the data management process, from collecting and storing to disseminating and destroying."

– Sarah Telford, Lead, Centre for Humanitarian Data

The Centre released a working draft of the Guidelines in March 2019. After receiving community feedback and subsequent revision, the Guidelines will be officially released later in 2019. The guidance focuses specifically on all data managed by OCHA, processed on OCHA's behalf, or processed by actors coordinated by OCHA. They apply to both publicly available and restricted access data. However, this report focuses specifically on the the Guidelines' applicability to the former, and expands its applicability to the broader humanitarian community.

Using Behavioural Science to Further the Trend Towards Collective Data Responsibility

All humanitarian actors must collectively embrace data responsibility in order to appropriately harness the potential benefits of shared humanitarian data. This collective shift will help mitigate the privacy risk to affected populations that may stem from irresponsible data use. In this section, I explore how a psychological understanding of human nature can inform the encouragement of individual and organizational behaviour to prioritize responsible data practices. This provides a scientific basis to inform my alternatives, and later, my implementation strategy. Reference [Appendix A](#) for a series of summary tables connecting both referenced concepts and other relevant theories to concrete steps to encourage data responsibility.

To narrow the scope of this review and make it more relevant to the Centre, I focus specifically on the top-down spread of normative influences. This considers how global social norms influence local social norms, which then influence organizational and individual behaviour.

Introduction to Social Norms

An ever-growing body of academic research that spans nearly three decades focuses on social norms. It builds on the idea that an individual's behaviour and attitude is greatly influenced by the behaviour and attitudes of others in their social midst (Cialdini, Reno, & Kallgren, 1990). Within the scope of these broader social norms, there exist both group norms and individual norms. Between the two, group norms provide a more promising space for intervention as they are more flexible as a result of their direct connection to the core values of the group. In the case of organizations within the humanitarian sector, presumably each hold core values around assisting affected populations within the scope of their ability.

Types of Group Norms

Injunctive norms refer to actions supported and approved by the group

Descriptive norms refer to actions performed by members of the group

- Literature generally agrees that injunctive norms contribute more to the development of group norms, especially when clearly communicated.
- In humanitarian action, automatically practicing data minimization may become an injunctive norm, as the community grows more aware of the importance of this concept.
- Organizations heavily rely on a strong reputation for operations, and reputations are diminished when expectations are not met by the relevant stakeholders.
- Though referenced studies specifically focused on private organizations, the similar importance of reputations in the humanitarian community provides evidence for the effectiveness of developing injunctive norms in this sector.

Fombrun & van Riel, 2004; Heath & Gifford, 2002; Tankard & Paluck, 2016; Reichart, 2003; Schultz et al., 2007; Vesely & Klöckner, 2017

Emphasizing Collective Responsibility and a Shared Group Identity

Literature also focuses on the value of fostering and emphasizing a shared identity to set up ideal conditions for shifting norms. This requires focusing on a common outcome. In this case, it requires convincing humanitarian actors to focus on effectively assisting those in need. Bringing the humanitarian community together around this common outcome would thus help prioritize responsible data use.

I supplement the relatively little academic attention on the role of behavioural science in the humanitarian space with studies as related to environmental concerns because open data, like global environmental resources such as clean air and clean water, is a public good. In the realm of environmental challenges, studies have previously quantified the value of emphasizing collective responsibility rather than individual responsibility.¹ For example, researchers Obradovich and Guenther (2016) found that the general public donated approximately 50 percent more when interventions emphasized their collective responsibility. These interventions (in this case, modifications to a pre-existing online survey) appealed to the public's identity as global citizens, confirming the tactics of other studies that focused on strong global identities as well (Kramer & Brewer, 1984; Buchan et al., 2011). These studies all focus on cooperation to improve the use of a public good, thereby demonstrating the applicability of the findings to the humanitarian community's pursuit of open data use. Lastly, one recent study found that increasing this sense of connectedness improves socially responsible behaviour by increasing self-efficacy (Cojuharenco et al., 2016). Cojuharenco et al. classify connectedness as an avenue to enable better large-scale societal outcomes, developing a new idea that addressed an obstacle to collective responsibility pointed out in earlier studies (Lorenzoni, Nicholson-Cole, & Whitmarsh, 2007; Stoll-Kleemann et al., 2001). The relatively robust methodologies in these studies also increase the studies' credibility and contribution to this developing field.

The Role of Leadership in Norm Setting

The recent increased discussion around power dynamics as they relate to norms, specifically in the leader-follower relationship, informs this subsection. In public good settings, followers tend to adopt a quasi-matching strategy as they systematically mirror the actions of a leader to a slightly lesser extent whether positive or negative (McCannon, 2018). A major limitation of this study with regard to its applicability stems from its selected sample: undergraduate students from a private university. However, it confirms the findings of previous field studies in other countries with individuals of different ages and socioeconomic backgrounds, which increases the relevance of the finds in the context of global norm setting given different cultural influences (Lorenzoni et al., 2007; Jack & Recalde, 2015).

Additionally, leaders are responsible for communicating group values, thus deeming them powerful in setting group norms (Scholl et al., 2018). Nonetheless, neurological evidence

¹ This applicability of this review stems from the assumption that the psychological basis for actions when faced with the use of a public good is comparable across fields given the universality of human nature.

for the diffusion of responsibility exists when too many leaders are involved, even if they do not have overlapping responsibilities (Ulh-Bien & Arena, 2018). This compounds in crisis-settings as it may not always be clear who has the responsibility to make judgments about new scenarios (Pramanik et al., 2015; Quarantelli, 1988).² Thus, data stewards and leaders in the data responsibility space must remain accountable to one another. Leaders emphasizing a collective identity will ultimately bring the wanted prioritization of responsibility to the fore and guide the ongoing conversation about data responsibility.

Towards Solutions: Awareness Campaigns

Limited literature exists on the effectiveness of awareness campaigns as related to public goods such as open data; however, what does exist points to the promise of utilizing a variety of communication platforms and engagement measures. One such study investigates the successes and challenges of seafood awareness campaigns.³ It points to the need for standardized indicators of campaign effectiveness, and notes a rising trend in social media marketing and online information distribution (Jacquet & Pauly, 2006). More recently, meta-analyses of behaviour-oriented measures to promote change indicate a six to seven percentage point increase in behaviour uptake (Borg et al, 2019; Möser & Bamberg, 2019). Note that these two studies are limited in applicability due to the specifications of their campaigns, but do provide valuable insight as to campaign programming across sectors. Other studies provide insight into reasons behind failed campaigns, such as low existing awareness of the topic's content (prior to pushing for behaviour change), and barriers such as inconsistent contexts and traditional myths that may contrast desired actions (Ajilore, Morka, & Onyenkeyab, 2019; Jervis & Winston, 2019; Dumesnil & Verger, 2009).

² It is important to recognize that decision-making may differ in the humanitarian sector due to the urgency and uncertainty of many contexts (Rubenstein et al., 2017; Rottkemper et al., 2012). Therefore, one should not assume complete rationality in all cases related to data responsibility in these contexts.

³ This study occurs in the context of global fisheries, which like open data, is another public good.

Criteria

The following criteria will evaluate the presented alternatives to determine each alternative's capacity to further the Centre's mission by encouraging data responsibility with the use of HDX. The condensed mission of the Centre is to increase the use and positive impact of data in humanitarian response, so the selected criteria revolve around these priorities. See [Appendix B](#) for the Centre's full mission statement.

The four presented criteria (reach, cost, short-term effectiveness, and efficiency) create a holistic framework that evaluates the general strengths and weaknesses of each alternative over a short-term, one-month period. All qualitative criteria (reach, short-term effectiveness, and efficiency) will be measured on a three-point scale ranging from 1 (low) to 3 (high), where 3 (high) is the desired outcome. Cost is measured in euros then converted to a relative scale ranging from 1 (high) to 3 (low), where 3 (low) is the desired outcome.

Criterion 1: Reach (weighted at 40%)

Reach refers to the breadth of each alternative, which considers the number of different organizations that a proposed alternative engages in a given time period. It stems from one of the main outcomes the Centre seeks to measure: connections in the network. This will be measured using estimates from previous actions undertaken by the Centre as well as considerations related to the existing makeup of contributing organizations to HDX.

The Centre prioritizes relationships with organizations, and the Guidelines aim to reach the broader humanitarian community; thus, this criterion is weighted at 40 percent.

Criterion 2: Cost (weighted at 10%)

Cost accounts for the total cost of a proposed alternative to the Centre. It accounts for fixed costs (including technical and resource investments) and variable costs (including salaries and training costs). This measure more directly accounts for the monetary feasibility of proposed alternatives, and will be measured using United Nations salary data and resource cost estimates.

This is important as the Centre receives support through a variety of partnerships, including but not limited to direct funding, grants, in-kind contributions, and partner secondments. Due to the high future potential for partnerships and thus the more limited likelihood that the full cost burden for any of the alternatives will fall entirely on the Centre, this criterion is weighted at 10 percent.

Criterion 3: Short-Term Effectiveness (weighted at 30%)

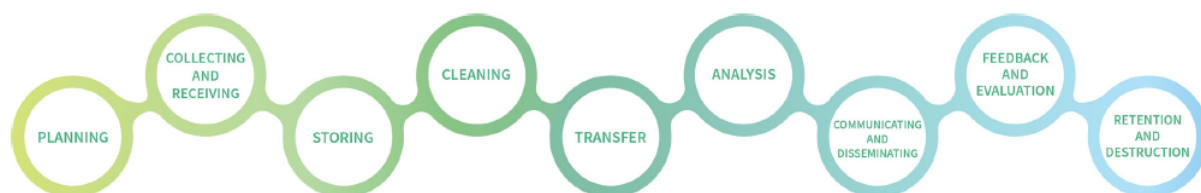
This measure captures the extent to which the proposed alternative increases uptake of responsible data practices by humanitarian organizations, in the short-term. This analysis assumes that alternatives that are tailored more specifically towards humanitarian organizations will be more effective, because they more directly reduce barriers to uptake of the Guidelines.

Another component of the Centre's mission focuses on increasing the use of data, so this criterion indirectly evaluates the alternatives with this in mind. Proposed alternatives must help organizations minimize risk to affected populations without making the data sharing process too cumbersome (which may dissuade users from uploading data to HDX). The Guidelines are ineffective without uptake, so this criterion is weighted heavily at 30 percent.

Criterion 4: Efficiency (weighted at 20%)

This criterion accounts for the additional time required in the data management process. Within OCHA, this process contains nine steps. It is depicted below in **Figure 2**.

Figure 2: OCHA's Data Management Process



Source: OCHA, 2019

However, for the purpose of this analysis, any additional time captured will specifically come from additional time between the cleaning and transfer steps, as well as the communicating and disseminating step (via HDX). It will be measured by considering the extent to which each alternative guides users across the management process. Alternatives that may require a greater time commitment on behalf of a contributing organization are considered less efficient, and thus rank low (1) on the relative scale, and vice versa.

This criterion falls directly under the first part of the Centre's mission: to increase the speed of data. In order to prioritize data responsibility while progressing towards this mission, this criterion seeks to identify alternatives that minimize additional time required while ultimately providing end users with data reflecting a current day, real-time understanding of a crisis. In doing so, this captures the ease of sharing data for different stakeholders. The relative importance of this component in the context of the Centre's mission leads to its weight of 20 percent in the final evaluation.

Alternatives

The following alternatives are meant for implementation in the period after the official release of the Data Responsibility Guidelines. They aim to reduce barriers to effective uptake and adoption of these Guidelines to further encourage responsible data practices. While the Centre already offers certain services to supporting offices and sections across OCHA, these recommendations expand the Guidelines' applicability to other humanitarian organizations as well. Options are ordered from least direct to most direct in terms of tailored engagement.

Alternative 1: Implement a data responsibility campaign

This option seeks community mobilization through an informational campaign focused on responsible data use. It stems from literature pointing to the promise of awareness campaigns. The proposed campaign would include online webinars and in-person workshops with a target audience of representatives from a variety of humanitarian organizations. This option suggests tailoring these meetings around both specific types of data and categories of data sharing concerns (ex. CTP data, migration data, data sensitivity, and more).

Each meeting would revolve around the Guidelines while identifying and addressing potential concerns and barriers to adoption from participating organizations. The goal remains the same across mediums: to assist any and all personnel who handle data with pursuing appropriate best practices. Exact logistical details will vary based on a number of factors (such as topic, location, partnering organization, and need, to name a few), but for evaluation purposes general assumptions are made. Webinars may occur twice a month, whereas in-person workshops may occur once a month.⁴ Webinars would be relatively short (75 to 90 minutes) while in-person workshops would last longer (anywhere from one to three hours). Specialized workshops relating to responsible data practices could also be held as part of larger day-long conferences on similar, relevant topics. These meetings would ideally be organized and coordinated with the help of implementing partners for relevant topics. For example, the Centre and CaLP could organize and conduct a workshop together around responsible data practices for CTP data – which occurred on 8 April 2019.

Alternative 2: Develop informal guidance documents

This option suggests developing tailored guidance notes and templates. These documents are specific to data types and certain issues related to managing sensitive data in humanitarian response. They aim to provide more specific guidance that will supplement the more general, and therefore longer, Guidelines. Depending on the exact case, they may reduce technical barriers (for example, by directing individuals to tools such as sdcMicro earlier, compared to if they had used the Guidelines to direct them).

Guidance notes are flexible documents, highlighting best practices and resources for users. For example, one such note would provide direction on judging the effectiveness of data

⁴ These time frames are based off of the Centre's organized events from March and April 2019.

aggregation. Templates are more rigid, and provide specific steps for users who handle certain kinds of data. For example, one such template would provide specific steps to make sure CTP data does not put affected populations at risk, assuming that the structure of such data is similar across organizations. This option has the same target audience as Alternative 1: data-handling representatives⁵ from humanitarian organizations. The development of these documents should prioritize topics and data types that are relevant to the greatest number of organizations before focusing on more niche cases.

These guidance notes and templates would be disseminated publicly, like the Guidelines themselves. They would be distributed both as part of the official Guidelines and through more internal means such as email, and join the existing set of tools available to HDX users.

Alternative 3: Designate a part-time data responsibility officer

This option seeks to provide direct, expert guidance to HDX's contributing organizations. The Data Responsibility Officer (DRO) would deliver pro-bono consulting services. This individual would meet on a case-by-case basis to help organizations develop a strategy to adhere to the Guidelines, thereby facilitating the development of organizational cultures that prioritize responsible data practices. This may look like helping an organization pre-emptively develop its own Data Responsibility Plan, prior to facing any barriers to adoption. The DRO would also work with organizations to more directly reduce technical barriers. For example, they could work alongside an employee of a contributing organization to use sdcMicro or the tool that will come out of the ECHO collaboration.

This designated individual, either an internal or external hire,⁶ would have the proper expertise to assist employees at any level within an organization. Additionally, this individual would need to keep up to date with advanced analytics (such as artificial intelligence and machine learning) that are changing the data landscape, and continually consider how these may impact the interpretation of the Guidelines themselves. This analysis assumes that the DRO would require a time period of about two weeks to sufficiently prepare and meet with an organization that seeks assistance. Engagements may vary; the DRO may work with the CEO or President of an organization, or lead a discussion with several employees of the same organization. The specific interaction will ultimately be need-dependent, and may occur in-person or online via Skype.

⁵ For the purpose of this analysis, a "data-handling" employee refers to any humanitarian worker who engages with data at any point during the data management cycle.

⁶ An external hire would necessitate onboarding costs, but may bring additional bandwidth to the Centre.

Evaluation of Alternatives

This section evaluates the proposed options using the aforementioned criteria: reach (40 percent), cost (10 percent), short-term effectiveness (30 percent), and efficiency (20 percent). Forecasted outcomes rest on several underlying assumptions, outlined below.

1. Use of HDX as the primary data sharing platform
2. 211 contributing organizations to HDX⁷
3. Time frame for analysis: one month

Alternative 1: Implement a data responsibility campaign

Reach (high)

An awareness campaign has the potential to reach a variety of organizations within a given time frame. In-person workshops and online webinars can reach about 50 individuals per session, and in the short-term this analysis assumes just one session in the month.⁸

Assuming each individual represents a different organization, this means this alternative may reach around 50 organizations in this short window. Thus, this alternative has the potential to reach around 25 percent of existing contributing organizations in a one-month period. However, reach also captures individuals unaffiliated with contributing organizations, as Centre media (for example, through the blog) can reach a wider audience. As this is a relatively high percentage, this alternative receives a **high score (3)** in this criterion.

Cost (medium)

The total cost of this option is calculated by segmenting the campaign into two parts: 1) in-person workshops and 2) online webinars. This analysis concludes that workshops in this time frame would amount to €886.50, while webinars would come out to €17.30. Thus, this analysis estimates that the total cost for such a campaign would amount to €903.80 for the Centre. See [Appendix C](#) for a full cost and assumption breakdown. On a relative scale, this alternative is in the middle and therefore receives a **medium score (2)** for this criterion.

Short-Term Effectiveness (medium)

This option assumes that sessions employ the use of tactics outlined in [Appendix A](#), such as providing scenario-based risk information and planning coping responses. Given the mandates of contributing organizations, there does exist positive intention to pursue responsible data practices with the ultimate goal of assisting affected populations to the best of each organization's ability. However, workshops may not necessarily directly target potential barriers specific to each organization, given the relatively large number of participants. Thus, this alternative receives a **medium score (2)** in the short-term effectiveness criterion.

⁷ As of 12 April 2019. This number will continue to increase as more organizations utilize HDX.

⁸ Estimate based on OCHA's second Community Call on Data Responsibility in Public-Private Partnerships (Telford & Campo, 2019).

Efficiency (low)

These sessions will ideally prompt members of organizations to pre-emptively consider the risks that may stem from irresponsible data use, thereby minimizing additional time required to ensure safe data handling specifically in the cleaning, transfer, and communicating and disseminating phases. However, this intervention may not appropriately assist with technical challenges or issues that may arise in the midst of the data management process, so it ultimately ranks **low (1)** in this criterion.

Table 2 below summarizes the evaluation of Alternative 1.

Table 2: Summary Evaluation of Implementing a Data Responsibility Campaign

Reach	Cost	Effectiveness	Efficiency
3	2 (€903.80)	2	1

Alternative 2: Develop informal guidance documents

Reach (medium)

The development of more informal documents provides a means for humanitarian organizations that are more focused in scope (such as CaLP, focused on CTP programming) to pursue responsible data practices. These would be tailored and developed on a needs basis, so they would not reach an expansive network right away. However, once a template for a specific context is developed, other organizations that work with this type of data would be able to utilize it immediately as well. Therefore, in the short-term this analysis predicts reaching roughly 20 organizations, or slightly less than 10 percent of existing contributing organizations.⁹ Thus, this option receives a **medium score (2)** in this criterion.

Cost (high)

This option totals €0, therefore receiving the **highest score (3)** on the cost scale, as a low cost is more favourable. See **Appendix C** for further explanation.

Short-Term Effectiveness (medium)

This option provides more direct guidance, but lacks the personalized support Centre staff can provide with the other two options. Organizations working directly with disaggregated, household-level assessment data may simply require a checklist to ensure sufficient anonymization to protect against inference attacks, while more niche data may require more in-depth guidance that a generalized template may not be able to provide. Thus, short-term effectiveness (for applicable organizations) would receive a **medium score (2)**.

Efficiency (medium)

Such documents hold high potential to speed the cleaning step for data given the more topical, tailored approach to ensuring responsible data practices. However, as mentioned above, more niche data may require specific guidance, so this intervention would not

⁹ This figure would increase in the long-term as more templates are developed.

minimize additional time required to ensure appropriately anonymized data before transfer. Thus, this option ranks **medium (2)** in this criterion.

Table 3 below summarizes the evaluation of Alternative 2.

Table 3: Summary Evaluation of Developing Informal Guidance Documents

Reach	Cost	Effectiveness	Efficiency
2	3 (€0)	2	2

Alternative 3: Designate a part-time data responsibility officer

Reach (low)

In order to best assist contributing organizations, this analysis assumes the research and preparation required for the DRO would limit the number of organizations directly consulted to about one every two weeks, or two per month. Thus, in the short-term, this criterion ranks **low (1)** in this measure.

Cost (low)

This option costs between €3,283.91 - €4,727.95, giving it the **lowest score (1)** on the cost scale, as a higher cost is less favourable. See **Appendix C** for further explanation.

Short-Term Effectiveness (high)

As the DRO would work one-on-one with data stewards, or perhaps even lead a workshop for several individuals within an organization at the same time, research points to increased uptake and adoption of the Guidelines.¹⁰ This targeted intervention will most effectively reduce organization-specific barriers to adoption in the short-term. This in part stems from the fact that requesting the assistance of the DRO demonstrates existing positive intention to adopt responsible data practices, thereby increasing the likelihood that such an intervention would help organizations to actually do so. As the most direct intervention in terms of ensuring adherence to the Guidelines, this option ranks the **highest (3)** in terms of effectiveness.

Efficiency (medium)

In this case, the DRO may help reduce additional time required during the data cleaning process. They could also provide targeted assistance to help with the transfer and disseminating steps. However, efficiency would vary depending on where employees are in the data management process at the time of a consultation. Therefore, this option ranks **medium (2)** on the efficiency scale.

Table 4 below summarizes the evaluation of Alternative 3.

Table 4: Summary Evaluation of Designating a Part-Time Data Responsibility Officer

Reach	Cost	Effectiveness	Efficiency
1	1 (€3,283.91 - €4,727.95)	3	2

¹⁰See **Appendix A**. Reference Social Cognitive Theory and Organizational Development Theories.

Outcomes Matrix

Below, **Table 5** presents the full outcomes matrix, the full summary evaluation of the three presented alternatives. This informs the basis for the ultimate recommendation. As mentioned previously, each alternative is presented on a scale from one to three; one is lowest and three is highest in terms of the favoured scores. The weighted average for each option is presented as well; the option with the highest final score is deemed the most promising.

Table 5: Outcomes Matrix

		Alternatives		
		Alternative 1: Data Responsibility Campaign	Alternative 2: Informal Guidance Documents	Alternative 3: Data Responsibility Officer
Criteria	Reach (40%)	3	2	1
	Cost (10%)	2 (€903.80)	3 (€0)	1 (€3,283.91 - €4,727.95)
	Effectiveness (30%)	2	2	3
	Efficiency (20%)	1	2	2
	Final Score	2.2	2.1	1.8

Consideration of Trade-offs

Alternative 1 holds the most promise to reach a wide variety of organizations within a given time period, as supported by referenced literature and discussed projections. On the other hand, Alternative 3 performs the weakest with regard to the reach criterion. As a DRO would require a preparation time period to provide more in-depth guidance, this option reaches few organizations within any given time period in comparison. Alternative 2 receives a “medium” evaluation, relative to the other two options. These documents could reach a wide audience but the tailored nature limits their reach particularly early into implementation when few of these documents exist.

However, Alternative 2 surpasses both other options in terms of cost. As the development of these guidance documents would require minimal logistical support compared to the other two options, it ranks the most favourably. Of note, cost calculations for Alternatives 1 and 2 do not account for the work and time commitment of Centre staff, which could be quantified using salary costs. The need-dependent nature of workshops, webinars, and the development of guidance documents means that labour costs for these are uncertain. Alternative 3 thus has the highest cost, as it would require the guaranteed services of a DRO at a minimum for the full one-month period.

Despite the high cost, this analysis projects that hiring a DRO would prove the most effective at increasing uptake of responsible data practices by humanitarian organizations. Consultations could realistically engage multiple employees of a humanitarian organization at once, thereby most directly leveraging organizational change out of all three options. The

tailored session could also help an organization develop its own Data Responsibility Plan, increasing the likelihood that upper management of an organization would enforce responsible data practices for employees at all levels of the organization. This analysis concludes that the other two options are slightly less effective, as they cannot always directly address organization-specific barriers.

Lastly, this analysis concludes that Alternative 1 ultimately ranks the lowest in terms of efficiency, while Alternatives 2 and 3 both rank slightly higher. Again, efficiency refers to the additional time required in the data management process, as any additional data-handling practices would impact total time spent cleaning, transferring, and uploading data to HDX. As webinars are relatively short in duration, these would not provide a strong opportunity to help reduce organization-specific difficulties. However, both webinars and workshops may provide an opportunity for participants to learn about solutions to data type-specific challenges. This would minimize additional time by providing these participants with pre-emptive guidance on such challenges. Similarly, guidance documents are easily accessible, meaning users can quickly familiarize themselves with relevant guidance prior to running into challenges. This option ranks higher in efficiency though, as these resources would be available online to users at any step of the data management process, unlike those provided by Alternative 1. A DRO may assist at certain steps of this process depending on timing, thereby minimizing additional time due to unforeseen challenges and leading to a higher efficiency score than Alternative 1.

Recommendation

Based on the provided analysis, I recommend that the Centre should focus on further developing its **data responsibility campaign** after the official release of the Guidelines, primarily due to the campaign's ability to reach a wide network. This campaign is a crucial component of bringing the entire sector together around a shared understanding of data responsibility. To supplement the campaign, and for implementation on a needs basis, I recommend the development of informal guidance documents and the availability of a data responsibility officer. **Appendix D** summarizes this tiered approach to encourage data responsibility within the humanitarian sector in a one-page handout.

Implementation Strategy

The following subsections use available open government data (OGD) implementation literature in combination with the previously discussed behavioural science research to inform implementation, uptake, and adoption of OCHA's Data Responsibility Guidelines. It concludes with a discussion of potential barriers for adoption.

Building on Open Government Data Initiatives

The majority of scholarly articles on open data implementation focus on open government data (OGD) initiatives in particular. These provide insight into current research on open data policies at a national level, mostly focusing on those of developed countries. Because of this, findings cannot necessarily generalize to the international level to apply to the entire humanitarian sector in all cases, especially given the large presence of affected populations in developing countries. Two other major limitations for the generalizability of these studies stand out: 1) they purposefully exclude open data initiatives from NGOs and international organizations, and 2) OGD's goal lies in ensuring the long-term transparency of solely government information. The latter limitation suggests a notable disparity between OGD goals and humanitarian open data platform goals (Borgesius, Gray, & van Eechoud, 2015).

Nonetheless, a subset of the literature examining the success of OGD initiatives does provide evidence for the success of international-level open data initiatives. For example, Linnet (2016) identifies an "institutional gap" with a lack of "independent public bodies capable of auditing and authorizing data." This gap provides an opportunity for international organizations to mitigate privacy risk while promoting data sharing. Moreover, Gerunov (2016) demonstrates that the objectives of state- and national-level OGD initiatives are more often achieved than smaller scale local- and regional-level OGDs, implying data sharing creates higher value on a larger scale (Zuiderwijk et al., 2018). These OGD effectiveness studies also note a mismatch between OGD objectives and actual benefits (Borgesius et al., 2015; Linnet, 2016; Gerunov, 2016; Zuiderwijk et al., 2018). Thus, further research, specifically into humanitarian initiatives as related to open data, should focus on how these systems can more effectively align objectives with desired benefits.

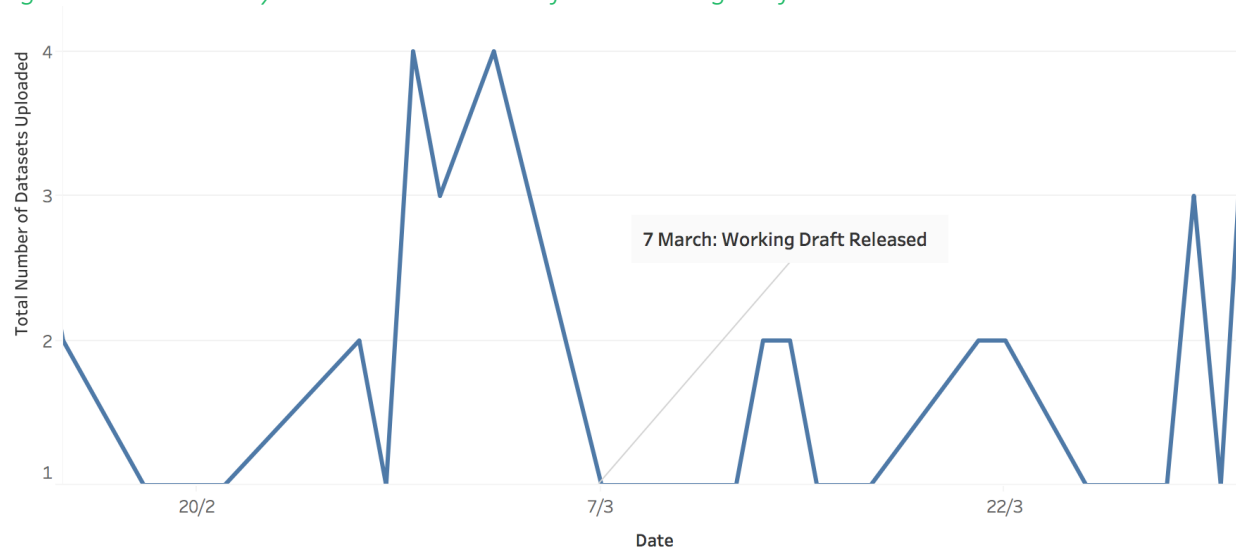
With these findings and conclusions in mind, I recommend that any steps taken towards promoting the Guidelines focus on the Centre's unique role (on behalf of OCHA) in filling the aforementioned institutional gap. Further, the Centre should maintain its focus on directly aligning HDX's objectives with the desired benefits (currently in the form of blog posts highlighting success stories).

Data Visualization: Humanitarian Data Exchange Activity

The following subsection uses dataset metadata pulled from the HDX Application Programming Interface (API) to visualize HDX activity. It aims to use activity around the release of the Working Draft on 7 March as a proxy of the humanitarian community's future response to the release of the official Guidelines. See [Appendix E](#) for the full data collection and visualization methodology.

Below, [Figure 3](#) shows HDX activity before and after the release of the Working Draft on 7 March. It shows the period from 15 February to 31 March. In this case, activity is measured by the number of datasets uploaded on a given day.

Figure 3: HDX Activity Around the Release of the Working Draft



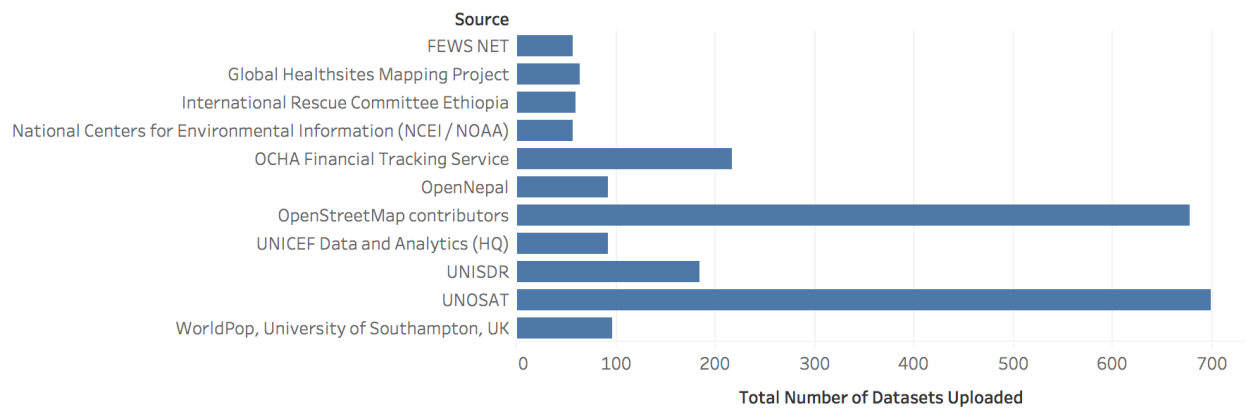
Source: Humanitarian Data Exchange API

Notably, there was a decline in activity after the release, indicating a correlation between the Working Draft's existence and the use of HDX.¹¹ This may indicate that the Working Draft posed barriers that were significant enough to dissuade users from using HDX. This implies that implementation of any strategies used to increase uptake and adoption of the Guidelines should focus on reducing these barriers by making the Guidelines easy to use.

¹¹ Importantly, this is simply a visual correlation and not causation. There are a variety of other factors that may contribute to the slower activity in the period after the release (such as the timing of crises worldwide).

I also explored which sources provided the data for the greatest number of total datasets uploaded since the creation of HDX. This provides direction for the Centre, as it highlights the organizations to prioritize when considering organization-level interventions. **Figure 4** provides this information, including any source that has provided data for over 50 datasets on HDX.

Figure 4: Source Organizations by Total Number of Datasets Uploaded

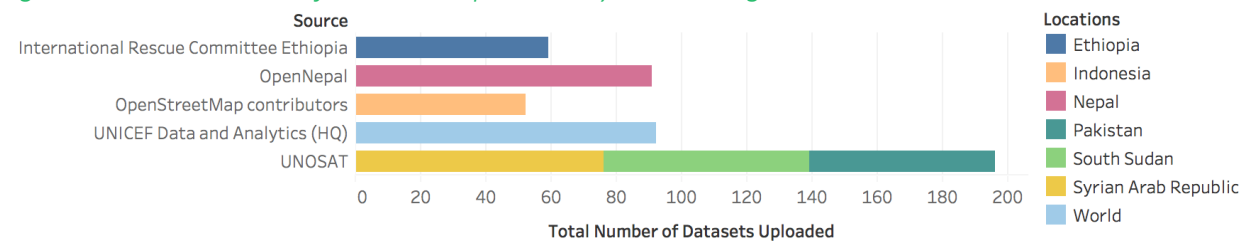


Source: Humanitarian Data Exchange API

Outside of OCHA, this graph indicates that the Centre should prioritize uptake and adoption of the Guidelines within UNOSAT and UNISDR. OpenStreetMap contributors do not comprise their own formal organization, but they are an informal community that the Centre could prioritize in the future as well.

I extract further insights in **Figure 5** by incorporating location data. The location of a dataset refers to the geographical coverage (by country) of the collected data. For example, a dataset that provides the locations of schools in Yemen would have its location coded as “Yemen.”

Figure 5: Total Number of Datasets Uploaded by Source Organization and Location¹²



Source: Humanitarian Data Exchange API

While the locations for IRC Ethiopia and OpenNepal datasets are intuitive, UNOSAT dataset locations are split between Syria, South Sudan, and Pakistan. This provides an opportunity to increase the effectiveness of the tiered recommendation. The Centre can tailor content,

¹² This visualization excludes datasets that code more than one country for simplicity.

whether the medium is a webinar or a UNOSAT DRO consultation, towards the specific context of these countries.

Reducing Adoption Barriers

This subsection outlines strategies that the Centre can utilize to support effective uptake and adoption of the Guidelines, using the recommended tiered approach.

The data responsibility campaign most directly reduces knowledge-related barriers.

Workshops and webinars can all be utilized to show the benefits of responsible data use and create awareness of those who already follow these best practices (Green et al., 2017; Weerakkody, et al., 2017). Moreover, workshops create arenas for exchanging experiences. For example, they may include discussions of potential use cases in which participants clearly outline and describe how they would navigate responsible data practices.¹⁴ These interactions will all increase familiarity with the Guidelines.

The Centre can use targeted media (Twitter, Facebook, and the organization's website) to publicize these meetings before, during, and after they occur. It can disseminate summaries and outcomes of workshops and webinars on its website. Because of the many steps, an effective campaign requires the coordination of a variety of Centre staff members (ranging from data policy officers to communications employees) for successful implementation.

Categories of Potential Adoption Barriers

Below I provide a list of potential barriers for consideration, which stem from parameters outlined in **Appendix A** as well as existing literature on guideline implementation.¹³

Knowledge-related barriers

1. **Technical challenges** to properly use provided tools
2. **Lack of flexibility** of provided guidance and tools
3. **Lack of awareness/familiarity** with the Guidelines

Attitude-related barriers

1. **Lack of willingness** to pursue responsible data practices among the humanitarian community
2. **Lack of applicability** to specific organizations

Organization-related barriers

1. **Limited integration** of best practices into organizational structures and processes
2. **Time constraints** to properly follow best practices
3. **Lack of resources** to appropriately account for advanced analytical techniques

Fischer et al., 2016; Gagliardi & Alhabib, 2015; Lugtenberg et al., 2011; Ploeg et al., 2007

¹³ The selected, relevant literature all fall under the context of health-related guidelines to supplement the lack of literature in the humanitarian space. This analysis assumes applicability across the sectors because 1) collected data is on vulnerable populations (whether natural disaster related or health related) and 2) all of these guidelines lack formalized enforcement mechanisms.

¹⁴ The potential effectiveness of such a practice stems from the Precaution-Adoption Process Model and Social Cognitive Theory, as mentioned in **Appendix A**.

The development of informal guidance documents also helps reduce knowledge-related barriers by expanding the flexibility of the provided guidance. Data type-specific documents also help integrate best practices more directly into existing organizational processes, and make the Guidelines more directly applicable to an expanded set of organizations.

Consultations with the DRO will most directly address organization-related barriers. It will help integrate best practices into routine activities, and decrease necessary effort on behalf of organizations by reducing technical barriers and making the process more intuitive for all users (Sá et al., 2016; Gerunov, 2016; Zuiderwijk, 2017). It also ensures that key users of HDX are supported with the knowledge to facilitate the change process within their organizations, as they incorporate appropriate practices into their daily operations. Given the availability of resources, a DRO would serve for a longer period of time than this analysis (i.e. longer than one month) as more organizations seek these services. This may occur via word of mouth or simply through effective publicity as momentum for data-driven humanitarian response continues to build.

The alternatives are not mutually exclusive. For instance, workshop and webinar participants could use relevant guidance notes as a part of these sessions. The DRO, assuming they have more specific subject matter expertise than the available Centre staff, could answer organization-specific questions as they arise during a workshop. The DRO could also reference templates during a consultation. Thus, a combination of all three options, used over time, could effectively reduce knowledge-, attitude-, and organization-related barriers.

Lastly, Green et al. (2017) point to the importance of building support before guidelines are officially released, which the Centre is already doing by engaging the humanitarian community while the Working Draft gains traction. Most notably, this has taken form with OCHA's Assistant-Secretary General Ursula Mueller visiting the Centre, blog posts providing context around the Guidelines, and the involvement of a wide variety of stakeholders throughout the Guidelines' development process. These actions directly address the lack of awareness, willingness, and applicability barriers. Continuing similar steps in combination with the recommended tiered approach will thus encourage data responsibility in the humanitarian sector after the official release of the Guidelines.

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Appendix A: Summary Tables Applying Behavioural Science to Encourage Data Responsibility

This appendix provides a table (split into four parts) applying various methods and theories to the promotion of responsible data practices. Notably, this provides recommendations aimed at both the individual and organizational levels.

Table A.1: Examples of basic methods at the individual level

Methods and Theories	Parameters for Optimal Use	Examples
Modelling <i>Providing an appropriate model being reinforced for the desired behaviour.</i> (Social Cognitive Theory; Theories of Learning; McAlister et al., 2008; Kazdin, 2008)	Reinforcement of model, alignment of model with individual and organizational visions, attention.	A data steward encourages data responsibility by sharing a personal use case: "I was unsure if our organization's data was properly anonymized, so I used sdcMicro..." "Now the data is publicly available with a re-identification risk of 99.9%..."
Facilitation <i>Creating an environment that makes the action easier or reduces barriers to action.</i> (Social Cognitive Theory: Bandura, 2004)	Requires targeted interventions usually at a higher level to facilitate conditions on a lower level, identification of barriers and facilitators.	An automatic popup on the HDX site with the Data Responsibility Guidelines when someone begins the data upload process.
Technical assistance <i>Providing the technical means to achieve desired behaviour.</i> (Organizational Development Theories, Diffusion of Innovation Theory, Social Capital Theory, Models of Community Organization: Flaspohler et al., 2008)	Assistance must fit needs, respective organization's vision, and resources of intended users.	Provide a technical tool that scans uploaded datasets to facilitate safe data sharing. Currently, this is the goal of the collaboration with ECHO.

Adapted from: Kok, 2008

Table A.2: Examples of methods used to change awareness and risk perception

Methods and Theories	Parameters for Optimal Use	Examples
Consciousness raising <i>Providing information, feedback, or confrontation about the causes, consequences of, and alternatives for, a problem or a problem behaviour.</i> (Health Belief Model; Precaution-Adoption Process Model; Trans-Theoretical Model: Champion & Skinner, 2008; Prochaska, et al., 2008)	Welcoming environment for constructive feedback. However, raising awareness must be quickly followed by an increase in collective self-efficacy.	Release of a report on recent cases of irresponsible data sharing, detailing the steps that led up to each case as well as the short and long-term consequences on affected populations. Encourage the planning of responsible data practices during data collection according to broad contexts or type of crisis.
Scenario-based risk information <i>Providing information that may aid the construction of an image of the ways in which a future loss or accident might occur.</i> (Precaution-Adoption Process Model: Mevissen et al., 2009)	Details, use of plausible and relatable scenarios with a cause and an outcome. Most effective when individuals generate their own scenario or multiple, distinct scenarios are provided.	Peer discussions of potential use cases in which participants clearly outline and describe how they would navigate responsible data practices. For example, a CaLP representative may share the process for ensuring minimal privacy risk for CTP data before it is publicly shared.

Adapted from: Kok, 2008

Table A.3: Examples of methods used to improve skills, capability, and self-efficacy

Methods and Theories	Parameters for Optimal Use	Examples
Cue altering <i>Changing a stimulus, either consciously or unconsciously perceived, that elicits or signals a behaviour.</i> (Theories of Goal Directed Behavior; Theories of Automatic, Impulsive and Habitual Behavior: Verplanken & Aarts, 1999; Wood & Neal, 2007)	Existing positive intention.	Encourage organizations to pledge that they will abide by the Data Responsibility Guidelines.
Nudging <i>Intervening to facilitate individual utility-maximizing behaviours, while preserving individual liberty.</i> (Thaler & Sunstein, 2009)	Making concrete plans.	Data stewards for regional and local offices of humanitarian organizations develop context-specific data responsibility practices.
Planning coping response <i>Prompting participants to list potential barriers and ways to overcome these.</i> (Attribution Theory and Relapse Prevention Theory; Theories of Goal Directed Behavior: Marlatt & Donovan, 2005)	Realistic barrier identification, practice of necessary responses	Prompt workshop participants to think about how their organization's data can be misused, and ways to limit this potential misuse before sharing the data.

Adapted from: Kok, 2008

Table A.4: Examples of basic methods at the organizational level

Methods and Theories	Parameters for Optimal Use	Examples
Participatory problem solving <i>Diagnosing the problem, generating potential solutions, developing priorities, making an action plan, and obtaining feedback after implementing the plan.</i> (Organizational Development Theories; Social Capital Theory; Models of Community Organization: Butterfoss et al. 2008; Waddell et al., 2016; Minkler et al. 2008)	Willingness from all parties to respect one another; organizations must have appropriate resources, skills, and motivation.	A data responsibility officer provides consultations for organizations seeking to share their data. They assist organizations in developing their own data responsibility practices to shift the organizational norm. Addresses barriers and reservations through a tailored session.
Organizational diagnosis and feedback <i>Assessing organizational structures and employees' beliefs and attitudes, desired outcomes and readiness to take action, using surveys and other methods.</i> (Organizational Development Theory: Waddell et al., 2016)	Appropriate incentive for participation, methods appropriate for organizational characteristics (ex. size, technical capacity).	Survey the employees that handle data within humanitarian organizations. Hold focus groups consisting of employees to review the results and address potential barriers for Guideline adoption and uptake.
Increasing stakeholder influence <i>Increasing stakeholder power, legitimacy, and urgency, often by forming coalitions and using community development and social action to change an organization's policies.</i> (Stakeholder Theory: Kok et al., 2015; Mitchell et al., 1997)	Recognition of value of humanitarian community and appreciation for collaboration.	Contributing organizations use media advocacy to highlight their responsible use of other organizations' data.

Adapted from: Kok, 2008

Appendix B: The Centre for Humanitarian Data's Mission Statement

This appendix provides the Centre's full mission statement, used to justify the selected evaluative criteria. The statement is pulled from the Centre's website.

"The Centre for Humanitarian Data is focused on increasing the use and impact of data in the humanitarian sector. It is managed by the United Nations Office for the Coordination of Humanitarian Affairs (OCHA). The Centre's services are available to humanitarian partners and OCHA staff in the field and at Headquarters free of charge.

The Centre is focused on four areas: 1) data services; 2) data literacy; 3) data policy; and 4) network engagement. Our vision is to create a future where all people involved in a humanitarian situation have access to the data they need, when and how they need it, to make responsible and informed decisions.

The main outcomes we want to see include:

- 1) Speed of data: We want to speed-up the flow of data from collection to use. We want to shift from using outdated information to understand humanitarian crises to having data that reflects a current day, real-time understanding of a crisis.
- 2) Connections in the network: We want to increase the number of partners who are connected to the Centre and each other through a shared data infrastructure and shared data goals.
- 3) Increased use: We want to make sure data is used better and more often by the people who are making critical decisions in a humanitarian response. We need to make sure data and related insights are accessible to non-technical people."

Appendix C: Cost Estimates for Evaluation

This appendix provides a full breakdown of costs and assumptions for the three proposed alternatives.

Alternative 1: Implement a data responsibility campaign

As mentioned in the body of this report, the total cost of this option is calculated by segmenting the campaign into two parts: 1) in-person workshops and 2) online webinars.

1) Workshops

The cost of any rental space would vary greatly, most directly impacted by the size of rental space (based on participant attendance), and the country/area in which the workshop is based. This analysis assumes 50 attendees (including any partners, Centre staff, and volunteers who will assist with the workshop), a meeting space in The Hague Humanity Hub, and a half day time period. The Centre is a member organization of the Hub, and thus would be able to use their event space. Price estimates are sourced from the Hub's website, specifically for their 03.05 (L) room ("The Hague Humanity Hub," 2019). This room is 70.62m², and features a large screen and two whiteboards.

In the Netherlands, refreshments are taxed at 9 percent while the event space is taxed at 21 percent ("Taxation in the Netherlands," 2019). **Table 6** below provides a full cost breakdown.

Table 6: Cost Breakdown of One Workshop

50x	Seat (1 = €7.00)	€350.00
50x	Coffee, tea, and water arrangement (1 = €4.50)	€250.00
50x	Snacks (1 = €3.50)	€175.00
Total Excluding Tax		€775.00
9% Tax		€38.25
21% Tax		€73.25
Total Including Tax		€886.50

Assuming one workshop in the short-term period of this analysis, the total workshop cost comes out to €886.50.¹⁵

2) Webinars

OCHA uses Webex to host webinars, which operates on a monthly pricing plan (with a discount for annual plans). This alternative would require the services of a "Plus" plan at a minimum, which amounts to €17.30 for one month ("Cisco Webex Meetings," 2019). This one month cost remains the same no matter the number of calls, so the assumed rate of two calls in a one month period would total €17.30.¹⁶

¹⁵ In reality, costs for physical spaces may be minimized for the Centre, as workshops may rely on partnerships with other organizations and thus be somewhat subsidized.

¹⁶ The Centre already has access to a membership as it uses Webex for other purposes. Therefore, Webex may not be an additional cost to the Centre if it chooses to pursue this option.

Total Cost: €886.50 + €17.30 = €903.80

Therefore, this analysis estimates that the total cost for such a campaign would amount to €903.80 for the Centre.

Alternative 2: Develop informal guidance documents

The development of such documents would require the coordination of Centre staff and perhaps additional subject matter experts, depending on the context. Given the variability of expertise needed, this measure does not account for associated salary costs. The documents themselves would be dispersed online, amounting to negligible costs. Overall, for the purpose of this analysis, total cost amounts to €0.

Alternative 3: Designate a part-time data responsibility officer

Given the level of expertise and professional experience required for this role, this analysis assumes the DRO would fall into the Level C fee range of the United Nations. As per ST/AI/2013/4, this would range between €6,567.81 and €9,475.9 per month, if the Centre considers an external hire.¹⁷ For a part-time hire, this would amount to between €3,283.91 and €4,727.95 per month (half of the full-time cost). Shifting responsibility to an internal hire may not increase salary costs at all; however, this is at the cost of time spent on other job duties (not captured in this analysis). This analysis also assumes that any tools referenced (such as HDX Tools or sdcMicro) are free to the public. Therefore, total cost would range between €3,283.91 - €4,727.95.

¹⁷ ST/AI/2013/4 refers to salary costs in USD, so these figures are converted to EUR using the exchange rate of 1 USD = 0.89 EUR from 28 April 2019.

Encouraging Data Responsibility in the Humanitarian Sector



Recommendation



Launch a data responsibility campaign

- In-person workshops and online webinars
- Tailored around specific data types and categories of data concerns (ex. call detail records, survey data, CTP data)
- Greatest reach to humanitarian community

Implementation on a Needs Basis

Develop informal guidance documents

- Templates specific to data type (ex. cell phone data)
- Reduces technical barriers to



uptake of the Guidelines
- Lowest cost to the Centre

Designate a part-time Data Responsibility Officer

- Meet on a case-by-case basis with organizations to develop responsible data practices



- Most effectively reduces organization-specific barriers

Appendix E: Data Analysis and Visualization Methodology

This appendix provides additional details on the methodology for creating the visualizations referenced in the Data Visualization section. The steps are outlined below.

1. I developed a Python script to pull metadata on the datasets available on HDX. I accessed the HDX API to do so.
2. I pulled the data on 30 April. At that point, there were 8,890 datasets uploaded to HDX.
3. Relevant attributes of each dataset were then exported to a CSV file, creating a dataset that I could use for visualization. Selected attributes included:
 - a. Date Created
 - b. Name of Dataset
 - c. Number of Downloads
 - d. Update Frequency
 - e. File Types
 - f. Source
4. I imported this new dataset into Tableau to create the referenced visuals. Any datasets associated with an unusual date format were excluded. This includes datasets that provided a range rather than a single upload date, or datasets marked as “Null.”