Urban Foresight

DEEP Dive

A comprehensive review of DEEP – the Data Entry and Exploration Platform

FINAL REPORT

Prepared for: Danish Refugee Council

DEEP

DRC DANISH REFUGEE COUNCIL

USAID FROM THE AMERICAN PEOPLE

Urban Foresight

Urban Foresight® is a multidisciplinary innovation practice that is dedicated to accelerating the next generation of technologies, services, and policy frameworks for places, governments and public bodies. We work with ambitious organisations around the world on projects that improve lives, protect the environment, and boost local economies.

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Executive Summary

This is the Final Report for Urban Foresight's comprehensive review of DEEP – the Data Entry and Exploration Platform.

Introduction

DEEP – the Data Entry and Exploration Platform – is a tool designed for humanitarian analysts by humanitarian analysts.

DEEP aims to promote transparency, information sharing and collaboration. It is a free and open source tool aiming to support users across the humanitarian sector, providing access to an array of functions designed to make humanitarian qualitative data analysis more structured. It aims to minimise the fragmentation of initiatives, and duplication of efforts, information products, databases, and tools that support the sector humanitarian. It aligns with existing data standards, taxonomies, and frameworks, whilst also giving the users flexibility to adapt the platform to their own needs.

Since its inception in 2015, DEEP has undergone a series of developments and transformations, and recently launched out of its beta phase in January 2022. The DEEP Governance Board, hosted by the Danish Refugee Council (DRC) have therefore commissioned Urban Foresight to undertake a comprehensive review of the platform. The aims of the review are to:

1 / Measure the impact of DEEP to date.

2 / Identify relevant use cases for further development and extended services of DEEP.

Methods

A multi-faceted approach was undertaken to address the project aims and to ensure the review of DEEP is comprehensive. A detailed Methodology can be found in Appendix I.

The approach drew on six methods of data collection:

Desk-based reviews of documents provided by DEEP Project Manager, peer-reviewed documents and grey literature relating to DEEP and the use of data in disaster response and humanitarian aid.

30 Stakeholder interviews with general users of DEEP; the DEEP Governance Board; DEEP's Technical Partner; and non-DEEP users.

3 Focus Group Discussions (FGDs) in which 23 representatives of the DEEP Governing Board and members of Data Friendly Space/Togglecorp were engaged.

User satisfaction and experience survey with both open and closed questions. 58 respondents completed the survey.

Digital safari where our team set up individual user profiles and conducted the analysis for this review on DEEP to better understand the interface and typical user journey.

Data audit of quantitative data stored in DEEP based on Urban Foresight's existing data mapping templates.

Executive Summary

Key Findings

Overall, the comprehensive review of DEEP demonstrates that where DEEP is used, it makes an important and unique contribution to qualitative data analysis efforts in the humanitarian sector.

Key findings from the review are presented across three sections:

DEEP's impact on the humanitarian sector

DEEP has succeeded in its aims to facilitate collaboration, transparency, and information sharing. In many cases, users report DEEP facilitates better standards of qualitative data analysis. The review has further found that DEEP facilitates organisational change and is becoming a tool to manage people and projects.

User trends and engagement

DEEP has been successful in creating and attracting an engaged user base that represent important and influential organisations and roles in humanitarian data analysis. The number of active users and projects on DEEP may be small, but the quality of engagement is high. DEEP has been successfully used to conduct a variety of types of analysis for humanitarian needs, often on a large scale.

User experiences and satisfaction

Although there are significant issues concerning the usability of DEEP, users are highly satisfied with it overall. Users particularly appreciate that DEEP can improve the quality of analytical processes and can save analysts much time in extracting relevant information. Nonetheless, key improvements to the user experience and further investment into user support are required to ensure that DEEP can serve the humanitarian community more effectively.

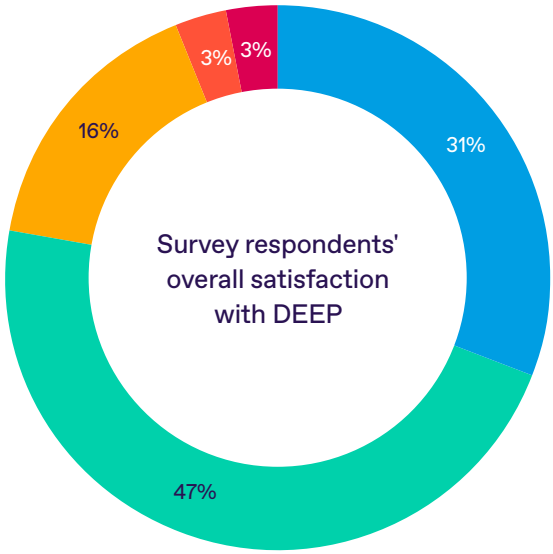
The review also identifies four opportunities to extend the potential use cases of DEEP:

1 / Primary qualitative data collection and analysis.

2 / Data gap analysis.

3 / Human rights and media monitoring.

4 / Small research operations.



Very satisfied | Somewhat satisfied | Neither satisfied nor dissatisfied | Somewhat dissatisfied | Very dissatisfied

Recommendations

Recommendations have been developed to guide DEEP into a growth stage. There are a total of 14 recommendations, organised across three key themes – revisioning DEEP, improving user experience and satisfaction, and widening the reach of use.

Revisioning DEEP

The ways that DEEP is used in some ways differ from its intended use and conceptualisation. This presents an interesting opportunity to re-vision DEEP's underlying vision.

1 / Revision DEEP as a workflow tool that can transform the culture of qualitative data analysis in the sector

2 / Revision DEEP as a one-stop-shop for qualitative data analysis needs

3 / Revision DEEP as a tool with project and people management capabilities

4 / Review how DEEP is financed, ensuring it remains free at point of access to the humanitarian community

5 / Review the governance structure to ensure there is appropriate expertise included on the Board

Improving user satisfaction and usability

Technically, DEEP is a well-developed platform, however, many elements of DEEP are not intuitive to non-expert users. Improving usability and user satisfaction should be important goals.

6 / Develop appropriate and effective training and support resources

7 / Go through another structured UX Stage of development

8 / Address key technical limitations that are causing users to disengage with the platform

9 / Review the NLP function and choose to either abandon or rapidly extend

10 / Hone the strengths and well-used functions of DEEP before attempting to extend functionality

11 / Develop training tools for use by organisations

Widening the reach of use

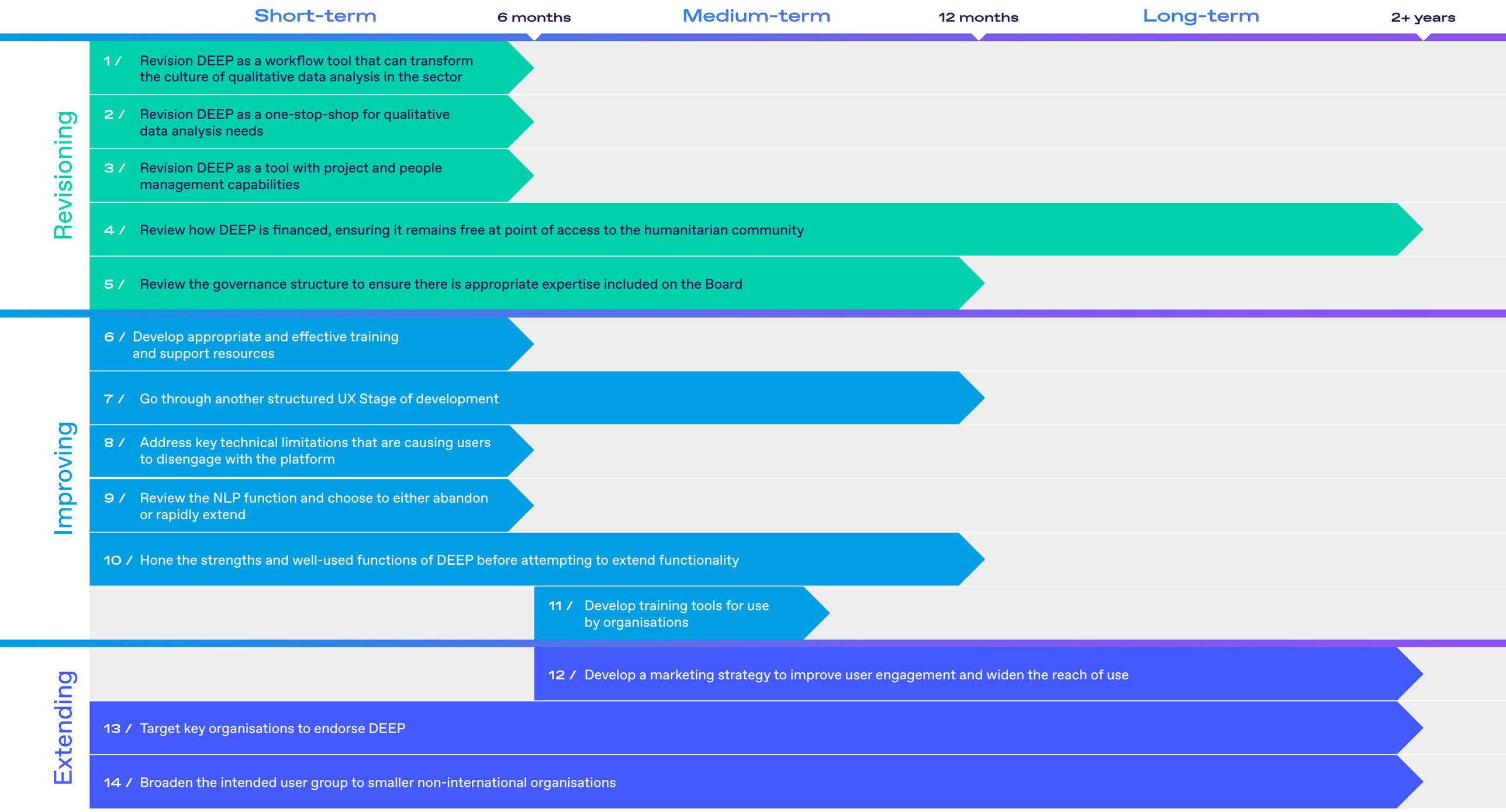
The review further recommends that strategies used to widen and deepen engagement with the DEEP are developed and implemented as a high priority after the remaining issues with usability are addressed and the user experience improved.

12 / Develop a marketing strategy to improve user engagement and widen the reach of use

13 / Target key organisations to institutionalise DEEP

14 / Broaden the intended user group

DEEP Recommendations Roadmap



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List of Abbreviations

BHA	Bureau for Humanitarian Assistance
CODs	Common Operational Datasets
DEEP	Data Entry and Exploration Platform
DFS	Data Friendly Space
DG DEVCO	Directorate General International Cooperation and Development
DRC	Democratic Republic of Congo and Danish Refugee Council
ECHO	European Civil Protection and Humanitarian Aid Operations
EU	European Union
ERD	Entity Relationship Diagram
HDP Nexus	humanitarian-development-peace Nexus
HPC	Humanitarian Programme Cycle
GIMAC	Global Information Management, Assessment and Analysis Cell
IDMC	International Displacement Monitoring Centre
IFRC	International Federation of Red Cross and Red Crescent Societies
IM	Information Management
IMAC	Information Management and Analysis Cell
iMMAP	Information Management and Mine Action Programs
JAWS	Joint Analysis Workspace
JIAF	Joint Intersectoral Analysis Framework
JIAG	Joint Intersectoral Analysis Group
JIPS	Joint IDP Profiling Service
KPI	Key Performance Indicators
NGO	Non-Governmental Organisation
NMFR	Norwegian Ministry of Foreign Affairs
NLP	Natural Language Processing
NRC	Norwegian Refugee Council
OCHA	Office for the Coordination of Humanitarian Affairs
OHCHR	The Office of the United Nations High Commissioner for Human Rights
RCRC	Red Cross Red Crescent
SWOT	Strengths, Weaknesses, Opportunities, Threats
SDR	Secondary Data Review
SIDA	Swedish International Development Cooperation Agency
UN	United Nations
UNDCO	UN Development Coordination Office
UNDP	United Nations Development Programme
UNHCR	United Nations High Commissioner for Refugees
UNICEF	United Nations International Children's Emergency Fund
UNOCHA	United Nations Office for the Coordination of Humanitarian Affairs
USAID	United Stated Agency for International Development

Introduction

This Final Report presents the key findings from Urban Foresight's Comprehensive Review of DEEP – the Data Entry and Exploration Platform.

In recent years, the humanitarian sector has recognised the need for robust data monitoring and analysis frameworks within governments and organisations. There are a plethora of platforms and tools to carry out data tasks and analysis that serve a variety of purposes – cartographic tools can visualise citizen data in real-time being deployed to assist in humanitarian operations, while software can use satellite data from fishing vessels can indicate migration patterns for refugees crossing the Mediterranean[1].

However, there is a gap between the types of data and data solutions that exist and those that are of highest priority in the humanitarian sector. Protection data tends to be qualitative in nature – supplementing situation indicators in a way that are tangible and narrative to digest. But there are few platforms and data solutions targeted at qualitative analysis.

There is where DEEP comes in. The Data Entry and Exploration Platform (DEEP) is an online, collaborative platform designed for the purposes of qualitative analysis within the humanitarian sector, emphasising that there is not a lack of data but rather a lack of organisation and structure to collate, categorise, analyse, export, and share qualitative data within the sector. In 2015, a prototype was designed for ACAPS to respond to the increasing need to manage and make sense of qualitative data within the humanitarian analysis. DEEP has since developed into a tool for the wider humanitarian community.

The DEEP Governance Board, hosted by the Danish Refugee Council, commissioned this project as a comprehensive review of DEEP. This is the first independent evaluation of the platform. The review aims to identify the impact of DEEP to date and suggest potential use cases to shape DEEP's future. In doing so, the review has examined how DEEP supports and facilitates the needs of the humanitarian sector, contributes to evidence-based decision-making and enables a culture of collaboration and peer-review throughout the humanitarian sector. Urban Foresight was awarded based on its experience in the innovation sector.

An in-depth multi-method approach was developed to conduct this comprehensive review of DEEP. The review examines the impact of DEEP to date and considers potential use cases for DEEP in future. Through a series of user and stakeholder engagement strategies, a total of 30 interviewees, 23 focus group discussants and 58 survey respondents have been reached. Additionally, desk-based reviews, a data audit of DEEP user and project data, and a platform safari by our team have been conducted to collect supporting evidence. A detailed methodology is available in Appendix I.

This Final Report presents key findings concerning the impact of DEEP to-date. These findings have informed the initial set of recommendations and potential use cases for the platform. Throughout, 7 case studies are presented to provide additional context to the findings.

An in-depth multi-method approach was developed to conduct this comprehensive review of DEEP. The review examines the impact of DEEP to date and considers potential use cases for DEEP in future.

[1] Gutierrez, Miren, and John Bryant. "The Fading Gloss of Data Science." Development 65, no. 1 (2022).

DEEP in Context

DEEP – the Data Entry and Exploration Platform – was developed in 2016. The platform was developed following several years of discussions amongst a group of humanitarian workers invested in improving and streamlining qualitative data analysis.

Spurred by the wake of the 2015 Nepal earthquake, DEEP was initially developed to support the quality and effectiveness of disaster response and humanitarian aid for use by ACAPS.

DEEP has since developed into an online, open-source platform targeted for the entire humanitarian community and designed for diverse uses of qualitative data, such as secondary data review, media monitoring, protection analysis and operational learning.

Governance and Organisation

DEEP is governed by a multi-stakeholder consortium that constitutes a cross-section of humanitarian actors, including international NGOs, UN agencies and the RCRC Movement. A full list of members is in Appendix II. A Governance Board was established by and continues to be hosted by the Danish Refugee Council (DRC), which acts as DEEP's administrative partner. The Secretariat is made up of a two-tiered system including a Steering Committee and a Technical Advisory Group. Member organisations can have individuals on both the Steering Committee and the Technical Advisory Group. The Terms of Reference for the Governance Board are available here: https://thedeep.io/DEEP_Governance.pdf

Technical overview

DEEP was developed and continues to be maintained by the Data Friendly Space (DFS), who act as DEEP's technical partner. In addition, DEEP uses Amazon Web Services (AWS) for server hosting and management services, and via DFS, outsources most technical tasks and tagging activities to Togglecorp, based in Nepal.

Much of DEEP is relatively new – the recent UX redesign initiative saw the platform overhauled. In this process, from 2020 to early 2022, the majority of DEEP was rebuilt from scratch. This review is therefore well timed to understand how well users have received these recent technical developments. The results of technical reviews of the systems architecture, the open design features, and DEEP's security features alongside an entity relationship analysis are available in Appendix III.

From 2020 to early 2022, the majority of DEEP was rebuilt from scratch. This review is therefore well timed to understand how well users have received these recent technical developments.

Purpose

DEEP's purpose is to support strategic and operational decision-making in disaster response and humanitarian aid. It provides users with a variety of tools and processes to manage and interpret qualitative data to build an evidence-base for improved decision-making on humanitarian issues. Its open-source nature is designed to enable transparency and communication across organisations. Uniquely, DEEP offers users the ability to design their own analytical frameworks.

The following core values guide the development of the platform:

- DEEP promotes transparency, information sharing and collaborative workflows and minimises fragmentation of initiatives, duplication of efforts, information products, databases, and tools. The rule is sharing unless data protection considerations apply.
- DEEP is free, open source, and fully accessible for all humanitarian end users, includes basic support and ensures that even the smallest local NGOs have access to a basic set of tools and services for secondary data analysis.
- DEEP uses data standards and common taxonomies, e.g., CODs, to ensure compatibility with other tools, datasets, and processes.
- DEEP is developed and governed by humanitarian analysts and for humanitarian analysts, for the benefit of the wider humanitarian community and not just for a specific agency or organization.

The DEEP Governance Board agreed on the following vision and supporting objectives for the DEEP Strategy 2022-2025:

- Make DEEP an indispensable platform for humanitarian analysis, providing a collective evidence-base for effective aid response.
- Scale, expand and improve efficiencies of DEEP services to provide the platform for strong evidence-based situational, risk & predictive analysis in support of country-led joint intersectoral, sectoral and individual agency objectives.
- Enable the absorption and cross-analysis of data across the nexus of humanitarian, human rights, peace and security, and development.
- Enhance the use of the platform through promoting best practices, branch standards and policies and provide learning and targeted capacity building.
- Establish a joint analysis platform to integrate unstructured and structured data and expert input for robust and transparent joint analysis in close collaboration with and between data providers in the humanitarian eco-system.
- Expand and grow the network through strategic partnerships and technical collaborations for technology enhancement, data integration, and joint ventures & funding.

DEEP Timeline

Selected global events Progress · Humanitarian crisis · Natural disaster · Conflict

2015

Nepal earthquake

Prototype of DEEP

2016

ACAPS releases D-CAP to support secondary data analysis (DEEP's predecessor)

Venezuela migration crisis

Grand Bargain is born at the first WHS in Turkey

First JIAG workshop held in Geneva

2017

Rohingya genocide

Hurricane Maria in Puerto Rico

JIAF development began

First UN World Data Forum held in Cape Town

DEEP is born based on a standard analysis framework

DEEP is re-written with a new development framework, a publicly accessible API and first version of NLP

2018

The DEEP Governance Board is formed

DEEP is included in Grand Bargain Workstream 5 for Needs Assessment and Analysis

A flexible framework solution and assessment registry is added to DEEP

Earthquake and Tsunami in Sulawesi

JIAF Conceptual Framework agreed

SDGs indicators database released

2019

Hurricane Dorian in the Bahamas

1,000+ registered users

2020

1,000+ projects

First award from USAID/BHA for enhancing DEEP's user interface (Beta phase)

DEEP is used for global COVID-19 monitoring through GIMAC and iMMAP projects

COVID-19 pandemic

Conflict in Ethiopia's Tigray Region

Language and concepts of the JIAF integrated with 2020 HNO

2021

Taliban takeover in Afghanistan

Grand Bargain 2.0 published

New governance structure launched including a Secretariat to support the DEEP Governance Board

Data governance framework established for DEEP

2022

5,000+ registered users

1,500+ projects

DEEP launches out of Beta phase

DEEP launched new NLP module

Multiple awards to improve joint humanitarian analysis through DEEP services

Secondary data analysis support to IMAC launched for Ukraine

First independent review of DEEP carried out by Urban Foresight

Russian invasion of Ukraine

Measuring Impact

The comprehensive review of DEEP demonstrates that where DEEP is used, it makes an important and unique contribution to qualitative data analysis efforts in the humanitarian sector.

Specifically, DEEP facilitates collaboration, information sharing, and in many cases, better standards of data analysis. DEEP also facilitates organisational change. It is becoming a tool to manage people and projects.

However, the reach of DEEP is limited and it has not yet reached its potential. In effect, DEEP has not yet matured from start-up status.

The review indicates there are two key elements that prevent DEEP expanding its impact in the humanitarian community:

1 / DEEP has not effectively penetrated the humanitarian data analysis market.

2 / There are key technical issues which undermine the user experience and reduce satisfaction with DEEP.

In what follows, we present findings from this comprehensive review of DEEP across three sections:

1 / DEEP's impact on the humanitarian sector

2 / User trends and engagement

3 / User experiences and satisfaction

We then present potential use cases and recommendations that support the broader strategic objectives of DEEP.

DEEP's Impact on the Humanitarian Sector

As a platform developed by and for the humanitarian sector, it is important to evaluate the extent to which DEEP is fit for purpose in the humanitarian sector to fully appreciate its impact to-date. The review shows that DEEP supports the needs of the humanitarian sector in terms of qualitative data analysis. More than this, the review reveals that DEEP has the potential to transform the culture of qualitative data analysis in the sector by changing workflows. DEEP is also well aligned to respond to future needs of humanitarian qualitative data analysis.

Takeaway messages

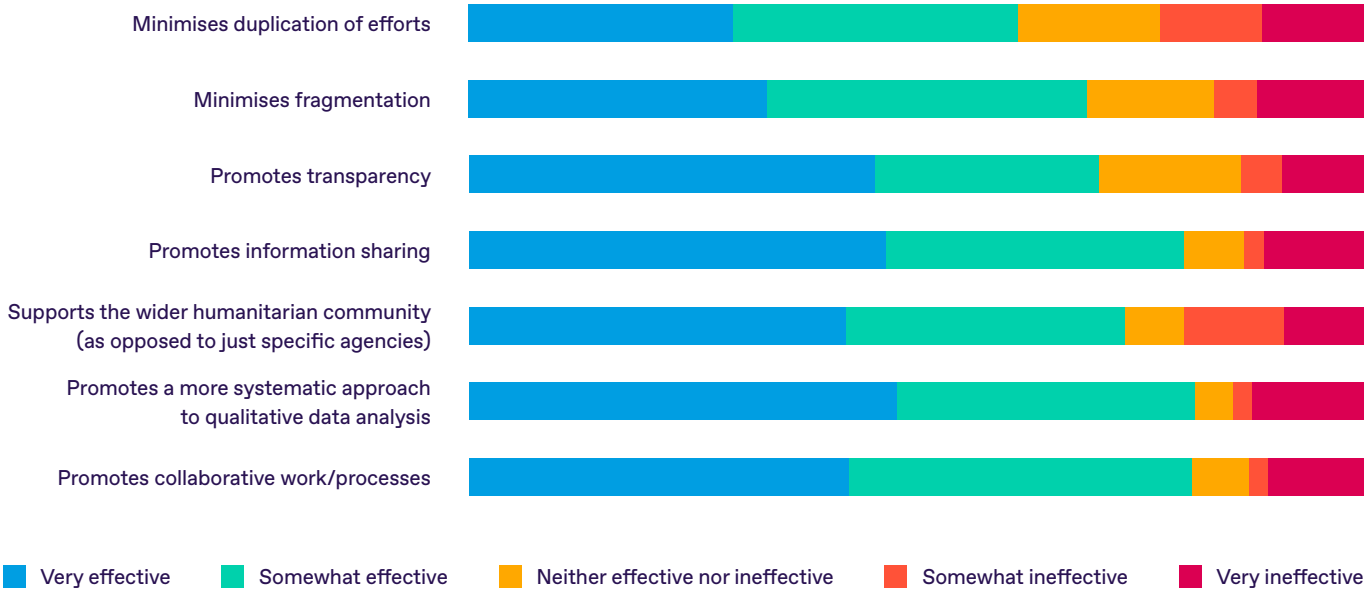
→ The core values of DEEP are being upheld in its use. DEEP supports the wider needs of the humanitarian sector. While challenges of the sector pertaining to data management and sharing will not be solved by DEEP alone, DEEP has enormous potential as a tool to address these challenges.

→ DEEP fulfils an important gap in humanitarian data management. It offers a unique ability to upload and analyse qualitative secondary data according to well-developed analytical frameworks, is free, and offers opportunities for collaboration.

→ DEEP is at risk of falling behind wider innovation in data management. Advances in artificial intelligence and automated technologies, alongside a growing appetite in the humanitarian sector for the more efficient structuring of ever-increasing amounts of data are both a threat and opportunity to DEEP.

Measuring Impact

Figure 1: Survey respondents' views of how well DEEP facilitates humanitarian goals



Facilitating humanitarian qualitative data analysis goals

The comprehensive review revealed a variety of ways that DEEP facilitates goals of the humanitarian sector, specifically related to the enhancing the culture of data collection, analysis and sharing of real-time and historical data within and across organisations (see Figure 1). Participants across the interview and survey programme believe the platform very effectively supports the humanitarian sector across all four of DEEP's core values.

DEEP has been particularly successful in providing a more systematic approach to the structuring of data in the sector, making it possible to "extract meaningful information much more quickly, easily and accurately than would otherwise have been the case"[2]. This is vital to understand what is happening in crisis situations and to plan and implement responses effectively and efficiently. Table 1 highlights additional ways DEEP facilitates humanitarian qualitative data analysis goals.

> "DEEP has made it much easier to analyse and process data because of the way it is structured, thanks to information filters and dashboards and exports that allow quantitative analysis of aggregated information"
>
> **Survey respondent**

Despite DEEP's strengths, politics and bureaucratic processes in UN Agencies and large international NGOs limit data-sharing processes within and across organisations and lead to the continuation of the duplication of efforts in some cases. This is beyond the scope of DEEP to address. Interviewees also reported concerns that the sector more broadly does not yet have the infrastructure and capacity to fully address sensitive and confidential data.

[2] Iñigo Ballester, 2021, writing for Protection Information Management (PIM) http://pim.guide/wp-content/uploads/2021/03/In%CC%83igo-Ballester-Use-of-DEEP-for-FGD-Analysis.pdf

Measuring Impact

Table 1: Key ways DEEP facilitates humanitarian qualitative data analysis goals. For further context about the context of humanitarian qualitative data, refer to Appendix IV.

DEEP provides the ability to structure and standardise vast amounts of qualitative data.

This is useful for creating a historical and usable record of data to develop longer-term insights. It can also bring attention to data gaps and help plan for future data collection activities.

DEEP provides the means for organisations and individuals to share and access humanitarian data.

This promotes knowledge transfer within the sector and contributes to minimising the duplication of efforts.

DEEP provides the means for collaboration.

Respondents appreciated the ability to work simultaneously, see others' progress and share data, particularly for multi-organisational projects. The main collaborative power of DEEP, seems to be within rather than across projects.

DEEP provides the ability to develop narratives from qualitative data.

Narratives can be used to supplement quantitative data to support fundraising activities and is attractive to donors.

DEEP improves the transparency of data analysis processes.

By showing analysts and funders where data has come from, there is more trust in analytical processes.

DEEP provides a clear functional purpose along the Humanitarian Programme Cycle (HPC).

Users can produce reports for situational analyses, needs assessments, or regional protection analysis – combining information from other projects into a more comprehensive snapshot of regional overviews.

DEEP can facilitate capacity building in the sector.

By providing a common space and process by which to undertake analysis, DEEP provides opportunities to level the playing field between large international organisations with more data analysis capacity, and smaller community-based organisations..

DEEP provides a more accurate, robust, and rigorous process of analysis.

Respondents explained how by undertaking more structured analysis, that new insights emerged, and that recipients of reports had more confidence in them.

Filling a unique need

The review confirmed that "a tool to support the analysis of qualitative data is becoming a huge need" (interviewee) in humanitarian settings. The review therefore examined the wider array of data platforms and technologies available to and used by the humanitarian community to provide insight into the extent to which DEEP offers a unique service. Over 40 tools and platforms that specifically service the humanitarian community were found. Many are no longer functioning, having failed to secure additional funding. OCHA's Information Management Toolbox recommends over 20 online tools to handle humanitarian data, noting that there are "probably too many!".

Interviewees and survey respondents were also questioned on their use of other humanitarian data tools. 80% use at least DEEP and two additional tools. 25% use DEEP and five or more other tools. Respondents were frustrated with the number of tools and found it could be difficult to navigate multiple tools across multiple projects:

> **"There was 14 **** tools for one project! Last year there was 7!"**
>
> (TAG Focus Group Respondent)

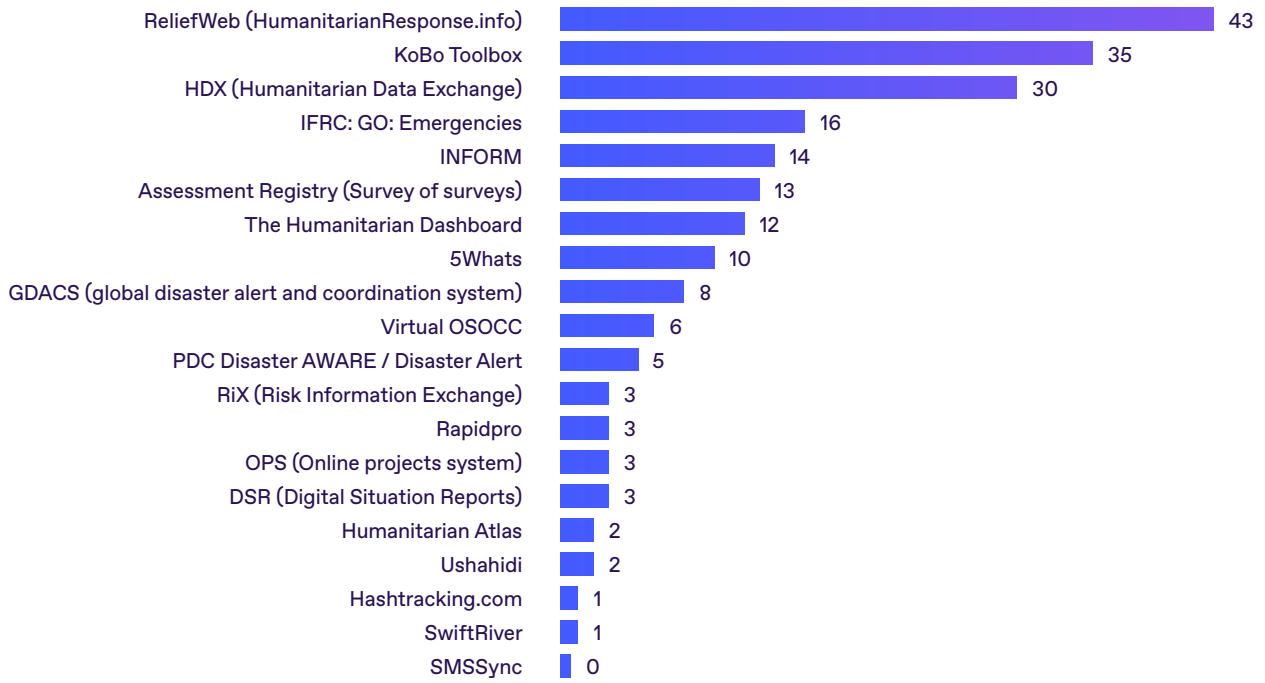
Figure 2 shows that ReliefWeb, KoBo Toolbox, HDX, IFRC: GO, and INFORM are the most used humanitarian tools alongside DEEP. Appendix V provides information on the most used humanitarian data management tools according to the survey respondents.

Most tools identified by the review and used by survey users and interviewees are geared towards quantitative data. Of those aimed at qualitative, the focus is on data collection as opposed to analysis. Those dedicated to analysis tend to be smaller in scope and often developed for a specific crisis with minimal evidence of follow-up use.

Despite this array of tools available to the humanitarian community, the review found no comparable tools or platforms to DEEP. DEEP offers a unique ability to upload and analyse qualitative secondary data according to well-developed analytical frameworks. These findings are supported by a UNHCR review user-experience exercise using approximately 10 qualitative data tools. Interviewees further confirmed this, stressing that DEEP filled an important gap.

> **"What would you have done if DEEP didn't exist at this time? With No online platform, old way of coding"**
>
> Interviewee (IFRC)

Figure 2: Survey respondents' use of other humanitarian data tools and platforms



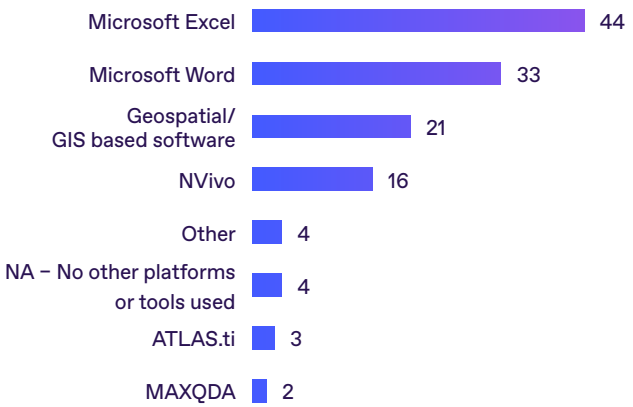
Other tools for qualitative data analysis

We also conducted a light touch review of non-humanitarian tools that DEEP users use alongside DEEP. Users generally use Excel and Word alongside DEEP (see Figure 3) and appreciate the integration DEEP facilitates. NVivo, Atlas.ti and MAXQDA are seen as more comparable to DEEP in terms of functionality. There is a consensus that while not as highly developed, DEEP is a strong contender in terms of functionality and usability and being free makes it a highly attractive option compared to platforms such as NVivo. Users reported few differences in functionality or learning curve, but that DEEP has more usability issues and bugs and less developed support resources.

Users find DEEP more effective for analysing humanitarian data than other platforms, and that its open nature and built-in collaboration make it an attractive offer when compared with the wider market. Users on the Board also appreciate the ability to influence the development of the platform and ensure it responds to humanitarian needs, something that would be unfeasible with an established tool.

That DEEP is free was frequently discussed as a particularly attractive feature. Interviewees reported that if individuals and teams had to negotiate procurement processes to access DEEP (as they may have to use platforms such as NVivo), DEEP would be unfeasible to use. Smaller organisations were drawn to DEEP as they often do not have the resources to pilot paid-for tools.

Figure 3: Survey respondents' use of other tools and platforms



Case Study 1

Situation Disaster Response in Ukraine (IMAC Project)

Within days of the 2022 invasion of Ukraine, UNOCHA's Information Management and Analysis Cell (IMAC), turned to DEEP as a way to structure and facilitate qualitative analysis to support humanitarian decision-making.

The 2022 IMAC Ukraine project has the most sources of any project on DEEP at over 7,500 and around 90 users. This is one the biggest and most collaborative projects on the platform. An affiliating project by the Norwegian Refugee Council (NRC) also collaborated on the same DEEP instance, and it was used to inform an IFRC DEEP project.

IMAC leads the collation and uploading of secondary data to DEEP on a monthly basis. Data is tagged with the support of DFS/Togglecorp. Here, the highly trained team are able to effectively and efficiently use the project management functions on DEEP to allocate, prioritise, and tag the hundreds of sources they access monthly. The tagging team are also tagging things that have wider relevance for the protection cluster, further contributing to the structured record of humanitarian data hosted on DEEP.

The tagged/ structured data has further assisted analysts in meeting urgent requests for data and decision-making. Analysts are able to easily and efficiently find specific thematic information that relates to specific geographical regions with very little effort. Others in the humanitarian community have reported exploring the Ukraine projects on DEEP to gain insight into the conflict.

The tagging team at DFS/Togglecorp have since been re-contracted by REACH to continue this work, effectively informing the Humanitarian Needs Overview 2023.

Changing workflows and organisational culture

The review revealed that DEEP also supports the humanitarian sector in unintended ways – DEEP prompts changes to workflows and organisations cultures. Through using DEEP, organisations re-focus and refine their ways of conceptualising and undertaking analysis. In this sense, DEEP becomes more than a tool, but a process and workflow in itself.

Users report that DEEP prompts discussions, the formation of working groups, the implementation of new working practices, and ultimately organisational changes in how qualitative analysis needs are framed and understood. DEEP guides organisations and individuals through a process of understanding their needs, and many report that analysis processes have been improved and made more robust as a result of using DEEP. There are several ways this happens:

- The use of DEEP prompts the development of a new analytical framework or changes to an existing one.
- The use of DEEP generates or transforms a culture of data-sharing in an organisation.
- The use of DEEP prompts the use of peer review of data analysis as a standardised process in an organisation.

Several organisations have embedded DEEP into their processes and DEEP is on the way to becoming institutionalised (see Case Study 2). Organisations appreciate the flexibility and agnostic nature of the platform that gives them the ability to be able to "change DEEP for what we need." There are also examples where DEEP has been modified to better fit organisational needs. UNHCR, for example, has a private version of DEEP on its internal infrastructure set-up to meet its institutional needs (see Appendix III to understand how the features of DEEP's open design facilitate this). Technical limitations of DEEP mean that at the moment, such bespoke uses require bespoke technical support and can become quite resource intensive. There may be scope for charging for bespoke support in these cases.

Case Study 2

DRC Predictive Analytics on DEEP: secondary data review for global displacement forecasting

DRC has invested significant efforts in developing predictive analytics tools that can provide DRC and the wider humanitarian sector provide with accurate forecasts and scenarios for strategic planning, operational response and programming in support of better prevention, anticipatory action and protection to displacement affected populations.

A key challenge for the uptake of these prediction models has been the black-box nature of machine learning / AI models. This means that the models do not provide any explanations for the predictions; rather they provide a quantity, such as the number of people that are forecasted to be displaced in the coming year. Initially, the project owners thought this would suffice in terms of the information needed by decision-makers to act on the forecasts. However, when trying to apply the tool in DRC strategic planning and advocacy, it was clear that the numbers would not suffice for decision-makers.

The project owners therefore turned to DEEP to facilitate secondary data review that could provide a qualitative narrative around the predictions being made by the machine learning models. By providing a qualitative narrative around the predictions, it helped decision-makers, such as country directors and senior management to explain to relevant stakeholders why specific future developments were being forecasted and thus should be acted upon.

DEEP is therefore now being used systematically to inform and develop the DRC Core Analysis – a country level contextual analysis to inform the annual strategic planning – where the qualitative analysis from DEEP is coupled with the forecasts being developed by the machine learning models.

DEEP is also used to produce the DRC Flagship Global Displacement Forecast report, where the forecasts from the machine learning models are being presented to external audiences for advocacy purposes. Again, DEEP is used to develop the qualitative analysis that goes into the report and provides the narrative around the forecasts for the spotlight country chapters in the report.

Responding to the future of humanitarian data

The desk-based review and interview and focus group programme brought attention to four future developments in the broader field of humanitarian qualitative data analysis that are of relevance to DEEP.

Table 2: Key debates and trends in humanitarian qualitative data analysis

1 / The potential and challenges of big crisis data

Big data refers to the ever-increasing velocity, variety, and volume of data. There is optimism that big crisis data defined as "big data collected during crises or mass emergencies"[3] can be used to provide real-time insights into complex and quickly changing situations. There are, however, ethical concerns about the implications of introducing further automation into humanitarian aid. Organisations such as Data-Pop Alliance and Big Data for Development (BD4D) network work to explore and understand the possibilities and risks of using big data and automating humanitarian analysis. At its core, DEEP is a tool that facilitates the structuring of big crisis data.

2 / The potential of AI, machine learning and other automated approaches

Related to the optimism of big data, is the potential of AI, machine learning and other automated approaches to assist in the structuring of big data. While resource intensive to develop appropriate effective automated and intelligent solutions, if successful, they can significantly reduce the time and resources spent on extracting structured information from big data sets. We recognise DEEP's initial release of a Natural Language Processing (NLP), or Assisted Tagging function released March-May 2022 as situated within this emergent trend. However, that the NLP function is not yet automated.

3 / The potential of predictive, rather than responsive, analytics

There are calls for humanitarian data analysis to use big data for prediction of disasters rather than just responses. The Centre of Humanitarian Data has a dedicated predictive analytics workstream. For predictive analytics to be successful, there is a need for high quality data. Currently, models are using quantitative data. DEEP has clear potential to support the sector in developing models through its database of structured qualitative data (entries). As Case Study 2 shows, in the case of global displacement, DEEP is already being used to complement predictive analytical processes.

4 / Lack of analytical skills across sector

The humanitarian sector has long been driven by quantitative assessments and many interviewees believe the sector struggles from a lack of capacity to understand the value of and undertake worthwhile analysis of qualitative data. It was frequently noted that DEEP is "only as good as what you put into it," and that organisations without dedicated IM and Data specialists may struggle to use DEEP to its potential.

[3] Junaid Qadir et al., "Crisis Analytics: Big Data-Driven Crisis Response," Journal of International Humanitarian Action 1, no. 1 (August 17, 2016): 12, https://doi.org/10.1186/s41018-016-0013-9.

User Trends and Engagement

To understand the impact of DEEP to-date, it is important to examine how well it has engaged users across and beyond the humanitarian sector.

The review shows while the number of active users and projects on DEEP are fairly small, that the quality of engagement is high. DEEP has been successful in creating and attracting an engaged user base that represent important and influential organisations and roles in humanitarian data analysis. Further, DEEP has been successfully used to conduct a variety of types of analysis for humanitarian needs, often on a large scale.

Takeaway messages

- → There are around 750 active projects on DEEP and 2,912 users that have been active on DEEP, 899 of whom have logged-in during 2022.
- → DEEP users are primarily Information Managers and Analysts from large UN-based and RCRC affiliated organisations. They are diverse in terms of thematic section and geographical scope of work.
- → Users can broadly be categorised into Diehard Influencers, Daily Users, and Disaster Taggers. Each group has varying levels of engagement and use with the platform.
- → The platform's agnostic nature is beneficial to supporting a wide variety of projects and uses, but there are some barriers preventing use.

The scope of DEEP projects

It is important to note that in serving the needs of the humanitarian community, that quantity of projects or users does not tell the whole story. If successful, DEEP should host projects that collect and analyse data about any and all humanitarian emergencies and protracted crises. With its aim to reduce the duplication of efforts and to ensure effective use of resources, an eventual goal should be for a relatively limited number of large, highly collaborative, likely long-term country-level or regional-level projects that comprehensively cover humanitarian crises.

These keystone projects would be supported by smaller, local projects. The IFRC Turkey example outlined in Case Study 3, demonstrates the potential of DEEP here.

The review shows there is a global spread in terms of where users are based and the geographic region in which projects are located. 53% of survey respondents operate on a global or international basis. DEEP is also used for regional purposes in Asia-Pacific and the Americas. Specific countries DEEP is used include Turkey, Sudan, South Sudan, the Philippines, Namibia, Ukraine, Mali, Colombia, Pakistan, Somalia, Venezuela, Yemen, and Cameroon. There are also sub-national projects. DEEP is therefore used in key places where there are humanitarian crises.

Case Study 3

IFRC Turkey using DEEP for Long-term Situational Analyses and Media Monitoring

DEEP is regularly used for the purposes of analysing secondary data for short-term disaster response and humanitarian aid projects. However, an impressive case study is where IFRC Turkey are using the platform for the purpose of long-term situational analyses and media monitoring. This project has the most users of any DEEP projects (excluding test projects) with 154, and ranks second in terms of sources added. It has been running since May 2021.

IFRC Turkey are responsible for the oversight and management of the Emergency Social Safety Net which came out of the EU-Turkey Deal in 2016. This deal created a form of universal-based income programme for Turkey residents to be administered by the Turkey Red Crescent. This is different to a lot of approaches to humanitarian aid, and it requires reporting, information gathering, media tracking, database management and other analysis to be distributed effectively. The IFRC team use various other platforms but none of them serve the same purpose to DEEP, to conduct SDRs.

Importantly, by moving this work onto DEEP, the IFRC Turkey team have now created and have access to a massive repository of historical data.

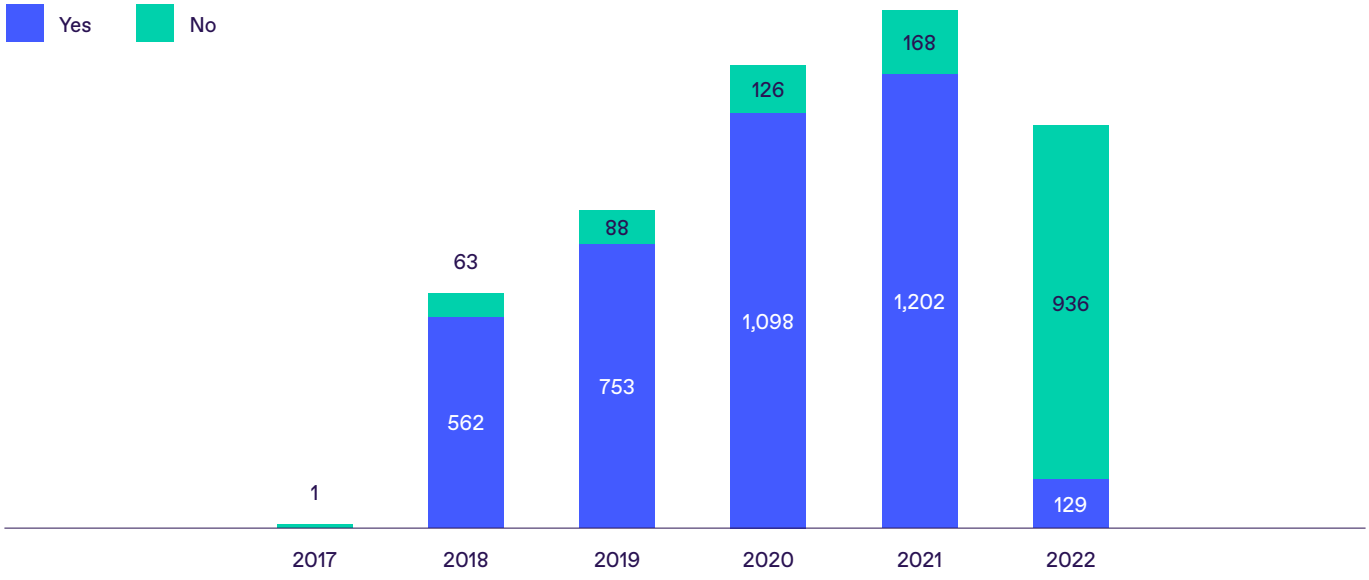
Numbers of DEEP projects and users

There are 2,429 projects currently hosted on DEEP. 66% or 1,614 of the total are neither training nor test projects, and for the purposes of this report are classed as 'real projects'. We do, however, recognise the value of test and training projects to support individuals and organisations in their use of DEEP. The data audit examined the 'real projects' to calculate an estimate for the number of active projects. Active projects are defined as those with at least one source added and with a framework. In total, 746 or 46.2% of the 'real' projects can be considered active.

There are 5,126 users currently registered on DEEP. We have estimated the number of active users, defined as any user who has done one of the following: created any project (test, training, or real), uploaded a source, created an entry, created an assessment, or created an export. Active users also must have logged into DEEP in 2022. There are 899 active users using this definition. This is below 20% of total users. Further, Figure 4 shows that users who have logged in during 2022 are overwhelmingly those who joined the platform in the same year.

The review therefore demonstrates a potentially significant issue with long-term user retention for DEEP. Despite this, the survey engaged a range of users in terms of length of time using DEEP. This suggests there is a core of users who have been active and engaged on DEEP for a long time.

Figure 4: Totals of users by the year that they joined DEEP and whether they have logged in to the platform again in 2022 ("Yes") or not ("No").



The review demonstrates a potentially significant issue with long-term user retention for DEEP.

Types of DEEP users

The review identified and engaged with many active users. There is a range of different types of DEEP users. Of the 58 survey respondents, 69% or 40 are in the humanitarian sector and 22% or 13 in development. Two work in both humanitarian and development, one in HDP nexus, and two in human rights. Figure 5 shows the main thematic sections survey respondents work in. 50 out of 58 survey users engage in cross-sectoral work. Figure 6 shows the job roles of survey participants. DEEP users are primarily employed as information and data specialists. This shows that DEEP has successfully engaged its key target audience.

Figure 5: Thematic sections survey respondents work in. Respondents could pick as many options as deemed necessary.

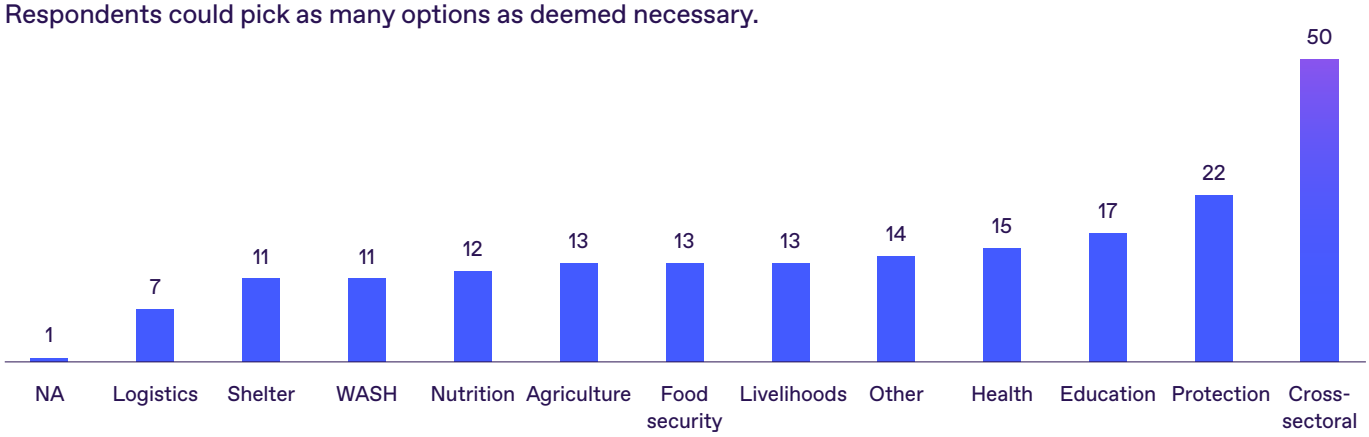
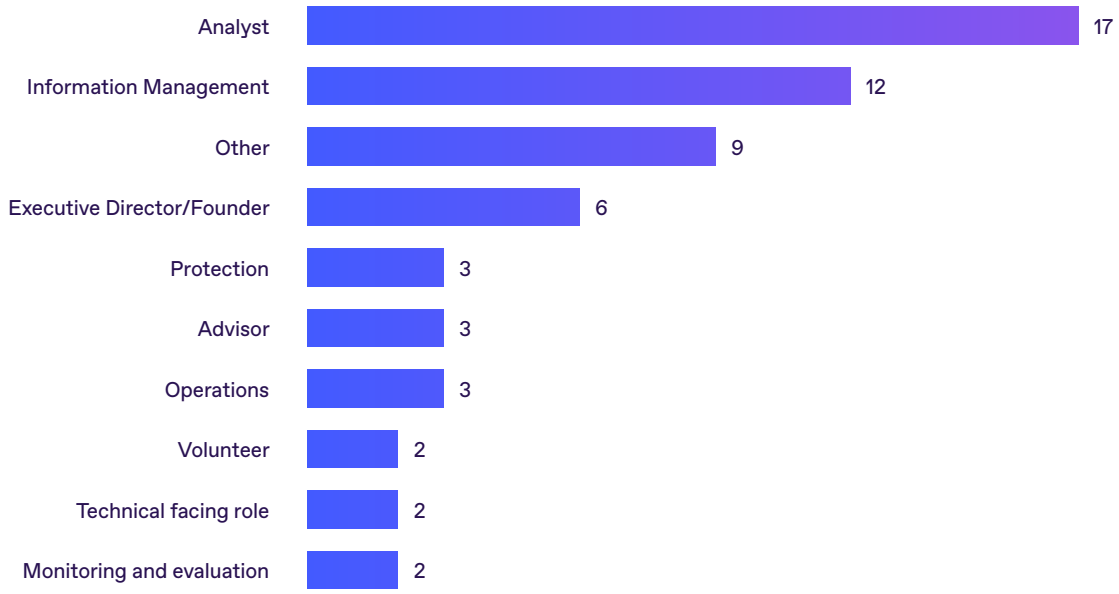


Figure 6: Job Roles of Survey Respondents



Measuring Impact

Table 3: Key user groups on DEEP

The user survey, stakeholder engagement, and platform data audit have brought attention to four primary user groups that should guide future engagement with users.

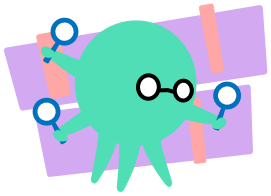
Diehard DEEP Influencers

Diehard DEEP Influencers have often been users for some time. Many have been involved in the development and/or testing phases, although there are also some more recent converts some of whom have been incorporated into the Board.

Diehard DEEP Influencers influence the development of DEEP as a platform and attempt to influence extended use in personal organisations and networks. Some have been highly successful in increasing awareness of and use of DEEP, whether by developing in-house training for their organisations, moving existing projects into DEEP, or through more informal conversations with others in the sector. They usually have senior roles in their organisations.

They are likely to explore new features and provide feedback on for development even though some have minimal first-hand experience in using the platform for humanitarian purposes.

Daily DEEP Users



Daily DEEP Users have been introduced to DEEP through working on DEEP supported projects or via Diehard Influencers. They may also have senior roles and be involved in the development of analytical frameworks within organisations. This group is primarily composed of those working in IM and with Analyst roles.

Daily users appear less invested in DEEP on a conceptual level and do less to actively promote DEEP further. Nonetheless, through their work and frequent use, they inadvertently extend use and become the de facto experts on DEEP within organisations. They use most if not all functions and are usually project owners.

Recently, some Daily DEEP Users have been added to the Technical Advisory Board which is an important development given their importance on the platform. This group appears most important for future user engagement endeavours.

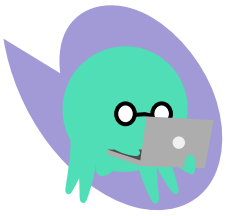
Disaster Taggers

Disaster Taggers are composed of DFS and Togglecorp employees, humanitarian volunteers including UN Volunteers, and junior humanitarian workers. They represent around 1/4 of survey respondents.

Disaster Taggers use few functionalities beyond uploading and tagging sources, and in many cases, are only involved in tagging.

Disaster Taggers often have limited experience in the humanitarian sector and generally require training from the organisation leading the project (except for DFS and Togglecorp where staff are trained in-house). Conceptual and technical knowledge is required for taggers to accurately interpret data sources according to frameworks. Their work is usually assessed via the Quality Assurance function.

Data Analysts



Data Analysts are comprised of senior employees of humanitarian aid organisations and analysts in DFS and Togglecorp.

They tend to use only export functions before interpreting the data and authoring reports on other programmes, primarily Microsoft Word and Excel. One user, for example, has created 200 exports, but zero entries or assessments, and has uploaded no sources. This group represents around 15% of survey respondents.

Data Analysts have limited say in whether DEEP is used in projects due to their position at the end of the data analysis journey. They should not be targeted for engagement.

Organisations using DEEP

For DEEP to be most effective, adoption by key international actors is required. These organisations have the ability to shape practices in the sector due to their reach, size, and importance. They are also home to around half of the world's humanitarian workers[4]. These organisations also already have extensive IM capacity and house most of the analytical knowledge and expertise in the sector. An interviewee from a community-based NGO further stated that seeing DEEP used and promoted by actors such as OCHA was central in his decision to use DEEP, giving him confidence that it was credible.

DEEP is used by influential organisations in the humanitarian sector. For example, OCHA is a keen user and promoter of DEEP. Here, there is evidence that OCHA is accelerating efforts to promote DEEP to its network, encouraging use through providing training opportunities and resources. Examples of organisations in Mozambique and Nigeria have been introduced to DEEP via OCHA in this way. The IFRC are also keen adopters, as are the Danish Refugee Council. In these organisations, there is evidence that DEEP is becoming institutionalised.

Other key organisations where we have engaged users include UNICEF, UNHCR, UNRCO, OHCHR, UNDCO, Nepal Red Cross, UN, UN Volunteers, IOM, UNDP, REACH, iMMAP, Netherlands Red Cross, and UNESCO-IIEP. The review thus demonstrates that DEEP has done well to engage a core group of UN-affiliated and RCRC organisations. However, DEEP is not yet well embedded in most of these organisations. That some of these now sit on the DEEP Board as of September 2022 is a key step to improve user engagement.

We also engaged users from the following smaller organisations: Almasheesh for Peace and Development Organization, Inspiring Vision for Consulting, Foreign Commonwealth and Development Office, El-Kanemi Memorial Foundation, University of Georgia, and Operations Partnership.

Why is DEEP initially used?

Apart from Board members, most users were introduced to DEEP by colleagues, by working on DEEP projects, or through attendance at humanitarian events.

Key reasons that prompted initial use are:

- To assist in structuring of secondary data.
- To assist in ordering and managing secondary data.
- To assist in secondary data analysis.
- To share and access information in the sector.
- To assist in informed and rigorous decision-making.
- To collect and analyse primary qualitative data.

Notably the ability for collaborative work and project and people management is not discussed as a primary reason for use of DEEP. These are however, important reasons users remain engaged with the platform.

[4] ALNAP, 2022, https://sohs.alnap.org/help-library/2022-the-state-of-the-humanitarian-system-sohs-%E2%80%93-summary

What is DEEP used for?

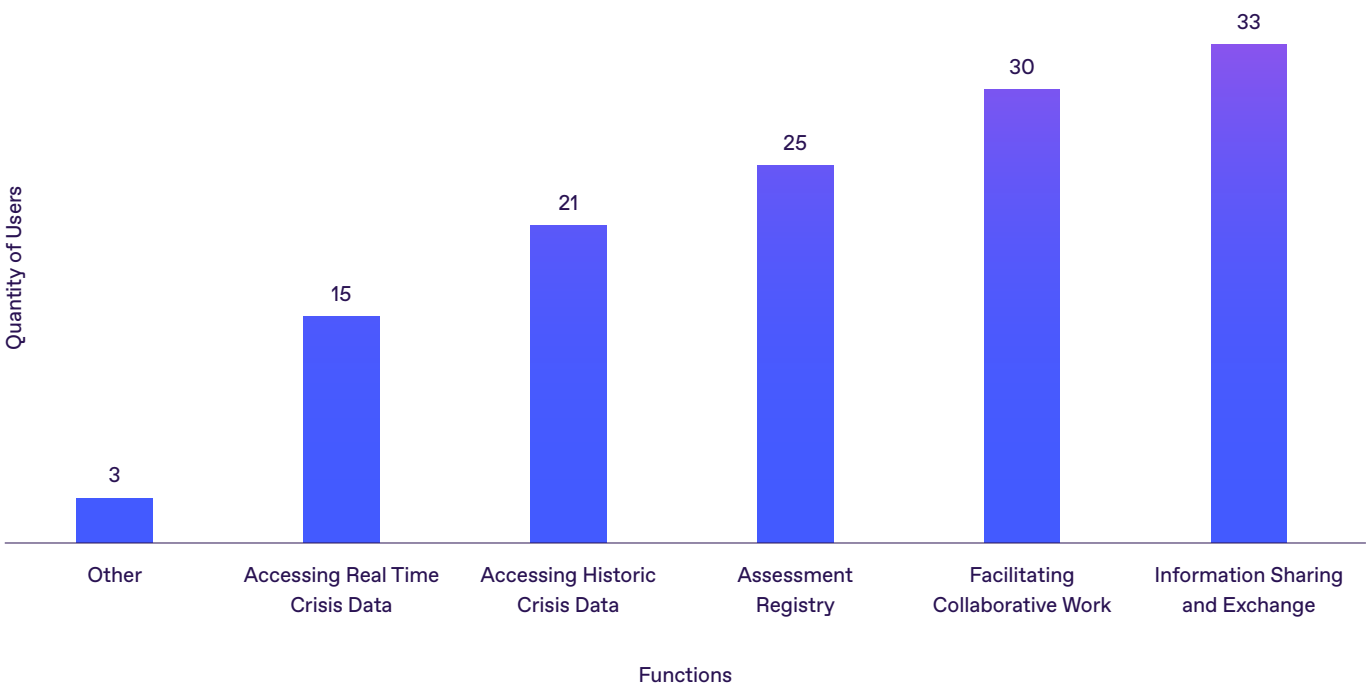
Importantly, and relating to the findings concerning debates on structured data, many interviewees referred to the importance of DEEP as a tool to structure unstructured data. Figure 7 shows the most important functions used by survey respondents. Here, information sharing and facilitating collaborative work are the key functions used on DEEP.

The review also identified DEEP was used as a project and people management tool – extending its use case beyond its intended purpose. Interviewees in various organisations noted that the ability to manage users, assign and view the progress of work completed, and to gain an overview of ongoing project activities is an invaluable element of the platform. Few interviewees were aware of the Quality Assurance function, but those who used it reported it was useful. Several of those who were unaware seemed excited to explore the feature following our call.

The project management dynamic of DEEP was particularly important for those running large projects with multiple volunteers involved to do tagging work (see Case Study 4). Here, DEEP was used as a training space to first train and review volunteers before they were added to the main project. There is also evidence that DEEP is being used as a form of a Volunteer Management System to help organisations organise, train, and engage with volunteers during crises because of DEEP's ability to "provide workspace and community" (interviewee).

There are calls for DEEP's project and people management functions to go further and allow organisations to have control over their suite of projects and be able to assign users to in user group types to help organisations in management activities.

Figure 7: Key purpose of using DEEP according to survey respondents



Case Study 4

Primary data collection and analysis

In 2020 an Information Management specialist based in Cabo Delgado, Mozambique used DEEP to facilitate the data collection and analysis of focus group discussions. Multi-sectoral focus group discussions with internally displaced people and host communities were taken to inform government and humanitarian actors about their needs and future intentions.

Through UNHCR's Southern Africa regional data analysis team (DIMA), the IM specialist learnt about a DEEP pilot in Tanzania. The Cabo Delgado response team developed an analytical framework ahead of time, in line with the objectives of the exercise. Sectoral staff involved in data collection then uploaded their notes or transcripts from the focus group discussions directly to DEEP. Access was granted to these staff who then classified or 'tagged' chunks of information from their FGDs according to the analytical framework.

Metadata and target information were added to the excerpts (gender, type of population – IDP/host, location, etc). These staff also evaluated these excerpts from the FGDs against a severity or perception rating.

Here, the collaborative nature of DEEP tools allows for several people to be working on the classification of FGD materials at the same time. This allowed the team to quickly process the data, responding to the tight timelines faced. Further, the output produced by DEEP – a spreadsheet dataset with all FGD excerpts, disaggregated by keywords, tags, severity/perception ranking and other metadata (gender, type of population/host, location, etc) allowed the IM specialist to produce diagrams and facilitate the reporting.

The team further found that the analysis was more accurate than it would have been otherwise, was more collaborative, and that it "strengthened the 'voice' of affected communities." Further, it was found that:

> **"This tool helped to narrow the bridge between IM and sectoral specialists. It feels collaborative in the sense that everyone feels part of the analysis [...] so it helps narrow that gap and helps people feel more involved in the process"**

Importantly, following this experience, the team have done much to promote the potential of DEEP in similar contexts. A blog providing further detail into their process is hosted on PIM.guide[5].

Case Study 5

Training Red Cross Volunteers in Colombia on how to use DEEP and Perform Tagging

Several interviewees from our interview programme – from both UNHCR and OCHA – identified positive experiences using DEEP to address the migration crisis in Venezuela. One of the individuals was specifically involved in training Red Cross volunteers in Colombia to use DEEP to perform secondary data analysis and tag documents. They first led a couple of training sessions on how to perform secondary data reviews, what DEEP is and how to use interpret and use frameworks effectively. This included several tagging exercises. Once they had basic training, the volunteers were assigned documents to tag. Both interviewees report that the effort in training was worth the time and investment. They also noted a positive experience collaborating between two organizations.

[5] Iñigo Ballester, 2021, writing for Protection Information Management (PIM) http://pim.guide/wp-content/uploads/2021/03/In%CC%83igo-Ballester-Use-of-DEEP-for-FGD-Analysis.pdf

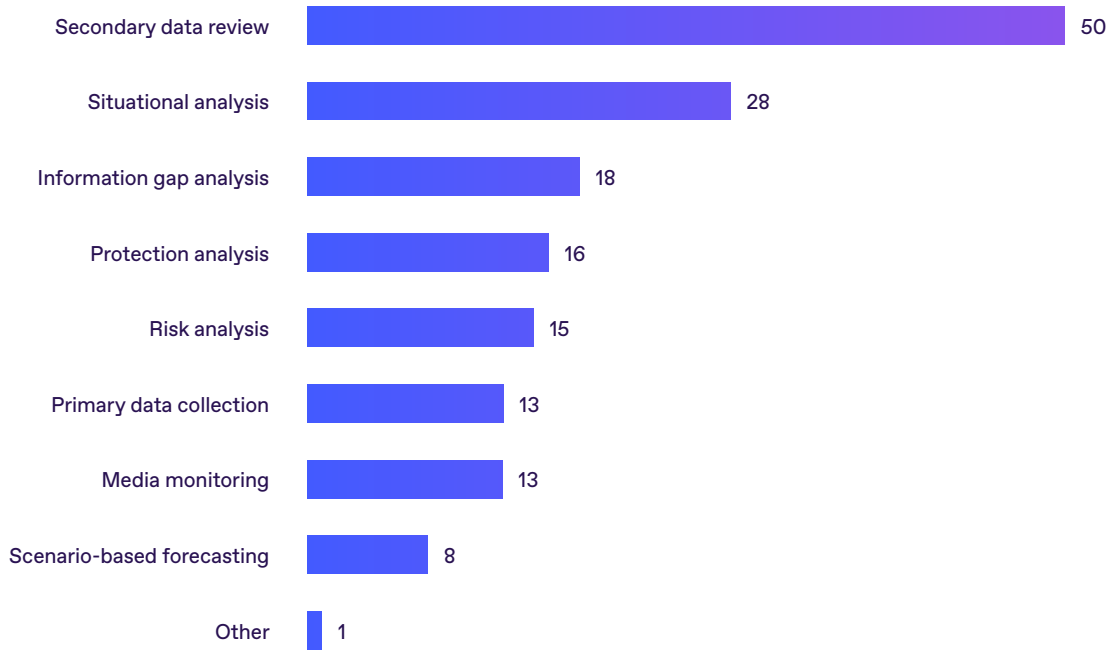
Which types of analysis are conducted on DEEP?

Primarily, DEEP is used to conduct qualitative secondary data review, situational analysis, and information gap analysis (see Figure 8). DEEP has applicability in both emergency contexts and longer-term protracted situations. In Turkey, for example, DEEP has been used for over 18 months to build a database about a slowly evolving situation (see Case Study 3).

We also spoke to three small organisations that were using DEEP to upload and analyse primary data – household surveys and focus group discussions. Our platform safari has also involved the use of DEEP to analyse primary qualitative data to much success. Case Study 4 provides an example of DEEP being used for primary qualitative data analysis.

Overall, there are no humanitarian analysis needs users feel DEEP is not suitable for. Smaller organisations in particular, see the potential to "convert to DEEP and use it for all [analysis] activities" (interviewee).

Figure 8: Types of data analysis conducted on DEEP



Overall, there are no humanitarian analysis needs users feel DEEP is not suitable for.

Why is DEEP not used?

We also sought to engage those who had never used DEEP or started and abandoned use. This group were, understandably, more difficult to engage, but key insights on their experience included:

Unclear messaging – Potential users are introduced to DEEP but do not see how it will add value to their work or overestimate its ability.

Incompatibility with in-house organisational tools.

Technical issues – Encountering usability issues or bugs and technical limitations early on can cause users to abandon the platform.

Fatigue with or distrust of new innovations.

Worries about sustainability – concerns of investing time in training and using DEEP due to its dependency on funding.

Incompatibility of analytical processes – Where projects undertaken are bespoke and there is no common analytical framework to work from, usually where projects rely on more inductive forms of analysis.

Lack of technological capacity – Where internet connectivity issues and/or lack of computer access are common.

Users do not perceive a need – particularly where projects are small, and users don't see a need to manage data via a platform.

A Diehard Influencer leaves their role – expertise and or motivation to use DEEP disappears.

Project partners prefer other options – In UNHCR, for example, DEEP was planned to be piloted as part of a project that was being contracted out. The subcontractors, however, were not informed of the plans to use DEEP and had developed their plan with NVivo instead. DEEP was thus not piloted in this case.

Concerns about sensitive and confidential data – particularly where there was a lack of awareness about DEEP's option to classify documents as public, restricted, or confidential.

Lack of organisational capacity to understand how to share sensitive and confidential information.

Security risks are very high – where organisations collecting data must be anonymised, and it is an undue risk to share geolocational data via a cloud server. This is a rare case. Further use of DEEP on organisations' internal infrastructure may help mitigate fears about sharing confidential and sensitive data.

User Experience and Satisfaction

To understand the impact of DEEP to-date and potential future use cases, it is important to examine user experiences and satisfaction with using the platform. Importantly, the review has shown that while there are significant issues to the usability of DEEP, users are highly satisfied with it overall. Users particularly appreciate that DEEP can improve analytical processes and quality and can save analysts much time in extracting relevant information. Nonetheless, there are key improvements to the user experience required to ensure that DEEP can more keenly serve the humanitarian community.

Takeaway messages

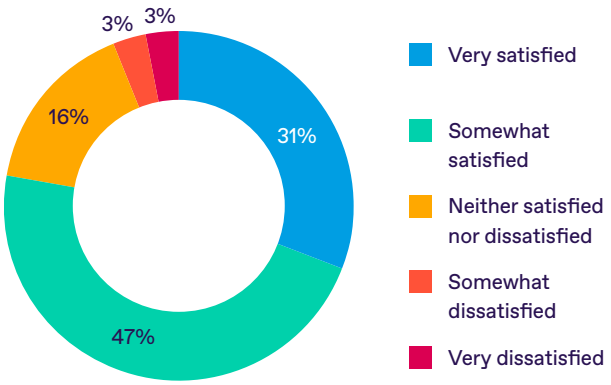
- → Overall, DEEP user satisfaction with DEEP as a platform is high – 78% of survey users are somewhat or very satisfied with DEEP.
- → However, there are key issues with usability that are a barrier to use and reduce satisfaction with specific functions and features.
- → Most users use most functions, but NLP and the use of connectors stand out as under-used functions.
- → The lack of accessible and up-to-date supporting technical guides are a key weakness and should be addressed as a priority.

Overall satisfaction

On the whole, DEEP users expressed clear satisfaction. Most users like DEEP, believe it offers value to their work, and perceive it as filling a well-needed gap in humanitarian information management. 78% of survey users are somewhat or very satisfied with DEEP. Just 7% are somewhat or very unsatisfied.

The interview programme highlighted that some particularly dissatisfied users were dissatisfied because they had misunderstood the purpose of DEEP and expected it to do much more. The lack of automation was a key indicator of dissatisfaction.

Figure 9: Survey respondents' overall satisfaction with DEEP



78% of survey users are somewhat or very satisfied with DEEP.

Overall usability

Despite the high satisfaction with DEEP, users reported extensive issues with usability and not all users found smooth sailing in the blues and greens of the DEEP (see Figure 10). This was clear across our user engagement and our own experiences. As one interviewee put it:

> **"DEEP is like when you have a Rolls Royce without steering wheels – a powerful machine, but not if you don't have the ability to drive it"**
>
> (Interviewee)

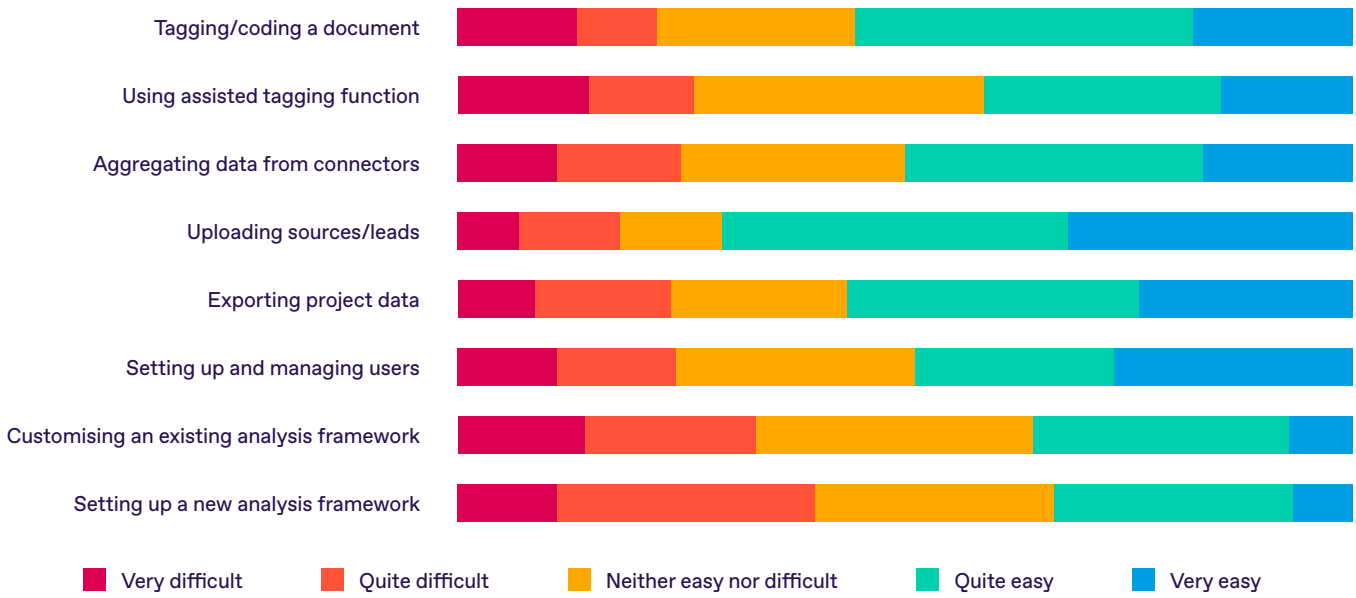
Those with experience of DEEP before 2022 believe the user experience and interface has improved significantly in the last year. However, those who have only used DEEP more recently still report serious concerns with its usability. The improvements are not sufficient.

Primarily, it was reported that DEEP is not particularly intuitive. This was noted across all stages of using DEEP – from tagging to exporting. Interviewees and survey respondents stressed that the lack of wiki or walkthrough guide made the platform particularly difficult to navigate. However, there is a clear consensus that initial usability issues are not too difficult to overcome. Typically, respondents noted the learning curve at several hours to several days, similar to other qualitative data management tools. DEEP users with experience with other tools such as NVivo seemed to find the transition easier. In our own team, our member with NVivo and MAXQDA experience more quickly grasped the purpose of key functions. A minority of users reported no difficulties.

DEEP seems to be most challenging for inexperienced Disaster Taggers. Taggers need conceptual and technical knowledge of the humanitarian sector and how to use frameworks to use DEEP to its highest potential. There is often a lack of time for training and capacity-building to make this happen, compounded by high turn-over rates of tagging employees and volunteers.

It is important to recognise that DEEP's developers have been limited. All development is completed on a grant funding basis, with individual initiatives prioritised based on demand and the severity of their development need. This has meant that certain issues are left without improvements, and changes are not levelled across the whole platform. For example, the assessments module was not rebuilt during the UX redesign because it has fewer users than other areas of the platform.

Figure 10: Ease of use of key functions at initial use of DEEP



User experience and satisfaction by feature

The survey and interviews revealed the most user-friendly features are uploading and tagging sources and exporting information. Setting up an analysis framework is the least user-friendly feature. The use of connectors and assisted tagging are the least widely used (see Figure 11).

Uploading sources

In terms of uploading sources, few issues were encountered in the actual act of uploading. Instead, issues centre on the complication of date published, and data created when labelling sources. We agree these terms are unclear and we were unsure how to label our sources. There are no explainers on the page. Some users were also concerned that uploaded sources can be attributed to organisations without their authority, although we appreciate there is no easy fix here.

Further, some users highlighted the difficulties in DEEP's text recognition functions. Often, when sources are uploaded text recognition and extraction functions do not work fully. Users often must manually copy text to create entries rather than highlighting text directly on DEEP. In other cases, users add screenshots of text as entries, which has implications as to the extent to which DEEP is facilitating the structuring of qualitative data. For example, in our platform safari, of the 33 sources we uploaded to DEEP, DEEP did not transform 14 into Simplified Text. In other cases, in transforming text to Simplified Text, characters can be changed. This is a typical issue for tools that rely on Unicode, but again, has implications on the quality by which data is structured. The review further suggests these issues are heightened where sources are in Spanish where accents are common.

Using connectors

Few respondents provided comments on using connectors, and 20% of survey respondents do not use them. Issues raised in this area appear to have been resolved in later updates. There have been some requests for integration with additional connectors and for ways to better filter data.

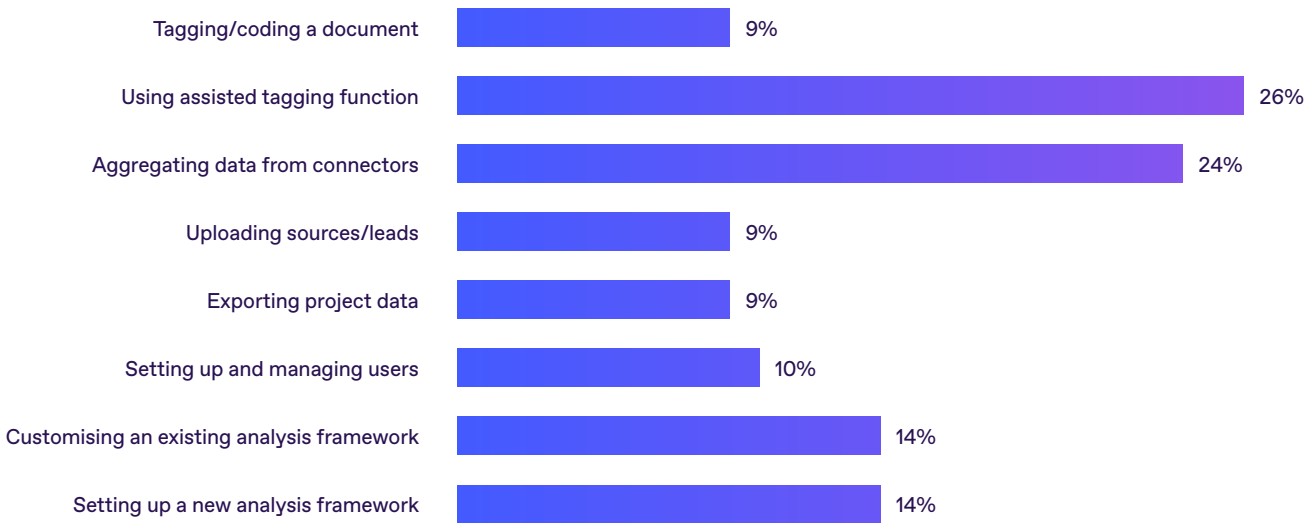
Tagging sources

While some users found tagging sources difficult initially, few issues were reported here. It quickly becomes intuitive. Engagement with taggers at DFS and Togglecorp further revealed they encounter few issues daily. The only issues reported following the January 2022 release are that DEEP tends to freeze if multiple people are tagging simultaneously on one lead, and that load times can be long.

Assessment Registry

Just under half of survey users use the Assessment Registry function. For those who use it, the function is seen as frictionless and as an important feature of the platform. It has also been used to evaluate information gaps in various projects.

Figure 11: Percentage of survey users that do not use certain functions on DEEP



Measuring Impact

Using Analytical frameworks

One of the benefits of DEEP is that it is an agnostic tool and users can choose how they use it, including which framework they use for their projects. Those using the generic framework or other well-established frameworks were impressed with the analytical frameworks feature. Those developing new frameworks often encountered barriers initially but were able to navigate their way through. This reflects our own experiences.

Two key issues were reported. First is the inflexibility in updating analytical frameworks after tagging has commenced. Respondents were concerned about missing key themes or having to spend time to re-tagging sources. However, our concern is more conceptual: in removing flexibility to add elements to the frameworks during tagging, DEEP hinders the ability for inductive tagging and analysis. This is appropriate for certain sub-sectors where data may be predictable but is limiting in other situations.

Second, it was frequently noted that the quality of any DEEP project rests on the quality of the analytical framework. The variation in analytical frameworks and definitions in the sector itself becomes a challenge to using DEEP, particularly where organisations have minimal expertise in qualitative data analysis.

Importantly, however, in having to create an analytical framework, interview respondents noted that this had led to a more concerted effort within teams and in some cases organisations to better define and understand their analysis needs. Again, this speaks to DEEP's potential to disrupt longstanding workflows. In this sense, it is not the platform itself that leads to better analysis, but the process in using the platform and developing an analytical framework that lead to the development of more considered analytical frameworks. This is an important indicator of the potential of DEEPs impact as a tool to improve the conceptual basis of analysis across the sector.

> **"We designed an entire new methodology on how to conduct an HDP joint analysis and DEEP is a key element in there."**
>
> (Interviewee)

Case Study 6

UNHCR Americas

DEEP has been deployed by a multinational team to conduct situation analysis in the Americas. Through adapting secondary tagging frameworks to specific country contexts, but maintaining a common primary framework, the team have successfully collated and analysed secondary data across Colombia, Venezuela, and Brazil.

This has enabled a range of insights to be drawn from the data. Further, the team appreciated the collaborative nature in which multiple users were able to work on and access files simultaneously.

Importantly, this example demonstrates the use of DEEP in Spanish as most of the uploaded sources were Spanish. The team also deployed the NLP function to great success in both Spanish and English.

Natural Language Processing

The NLP or Assisted Tagging function is one of the newest updates to DEEP, with a soft-release in March-May 2022. The assisted tagging function is a step towards DEEP's ultimate goal of automation. Currently, the entry extraction is close to achieving automation. Given the recent BHA/USAID funding, there is clear scope for the NLP function to achieve automation in tagging data.

There has been a slow rollout of the function, and it has not been featured on the website although has been discussed and presented at various events. Current testing demonstrates there is high accuracy with the feature. As Case Study 6 shows, the function can be used across multiple languages.

NLP is one of the least used functions on DEEP. Few interviewees reported using the function extensively, although there was a consensus that in theory, the ability for NLP seems to be useful. Key issues preventing engagement include its limited applicability across analytical frameworks, its lack of development for areas such as human rights, and the lack of time saved in using the feature. Further, engagement with stakeholders who do not use DEEP but are aware of it demonstrates that there may be some confusion as to the extent of the NLP functionality. Respondents believed DEEP that could automatically extract relevant data from sources.

Measuring Impact

Project management/Quality assurance

Although project management is not one of DEEP's core objectives, as noted, the ability to store and coordinate projects has emerged as one of DEEPs main strengths. Those using project management functions did, however, encounter several bugs or roadblocks:

- Organisations are not clearly verified against or associated with a user with administrative capabilities.
- There are two databases of organisations: those associated with projects and sources, and those associated with users.
- The latter is also a free-form field that risks creating duplicate organisations and poses a reputational risk to organisations, as they cannot control which users list themselves against their organisation.
- Sources can be added to source groups when they are opened, but there is not a functionality for adding sources to a group from the source group page.

Exporting data

Exporting data was frequently noted as a particularly challenging task, even for those with much experience.

A recurrent issue related to the difficulties in being able to filter by date. Users also reported that exports are often hundreds of pages in length, making it difficult to pull out key insights.

"There is a need to be very careful, we have very few people who do export as its difficult to get it right"

(Interviewee)

Case Study 7

Humanitarian Development Peace Nexus in Cameroon

In the first known example of DEEP being used to facilitate HDP-Nexus analysis, UN Cameroon have worked with the DFS team to develop a bespoke analytical framework capable of gathering and structuring information that meets the wider objectives of the HPD analysis and is tailored to the Cameroonian context.

The Cameroon team were unable to find any comparable tools to undertake their analysis but have found great success with DEEP.

"We reached out around the world for help. Then we heard about DEEP. We did a first trial and now will continue using it – it was perfect for what we wanted"

The team quickly found that not only did DEEP help facilitate their analysis, but it improved their understanding of the situation.

"We thought that ethnicity would play a big role, but through DEEP analysis, ethnicity wasn't the issue, nor was religion, it was socioeconomic and employment type."

Following this success, UN Cameroon have plans to further roll out DEEP to analyse three other areas. The ultimate goal is to use DEEP across all 26 regions of Cameroon.

Although project management is not one of DEEP's core objectives, as noted, the ability to store and coordinate projects has emerged as one of DEEPs main strengths.

Time saved and lost in the DEEP

The review shows that while DEEP has the potential to save organisations vast amounts of time in analysing secondary qualitative data (see Figure 12), that certain issues make it difficult to realise the time saving potential, particularly in the initial stages of using the platform. Nonetheless, users believe that "the effort is totally worth it" (interviewee) and that the quality of the outputs (exports and reports) is better than if DEEP were not used.

Table 4 outlines the key places time is saved and added through using DEEP. Time added is not always a weakness of DEEP and instead points to the increasing amounts of data being generated and/or when DEEP changes organisational processes and facilitates more rigorous data analysis than would have otherwise occurred. If DEEP can further succeed in minimising duplication and automating data, many of these burdens will be reduced. It is important to note, however, that several interviewees expressed concern that the time spent uploading, categorising, and analysing data on DEEP would be wasted if the platform ceased to exist.

Users are more likely to report that DEEP can be time consuming at point of first use. Users and non-users have reported that DEEP has not been used for time-critical projects it may otherwise have been suitable for due to either not having an analytical framework prepared, or due to a lack of expertise with the platform. This is not to say DEEP has not been used for time-critical projects and has been to great success in Pakistan. Rather, that this becomes a barrier to some.

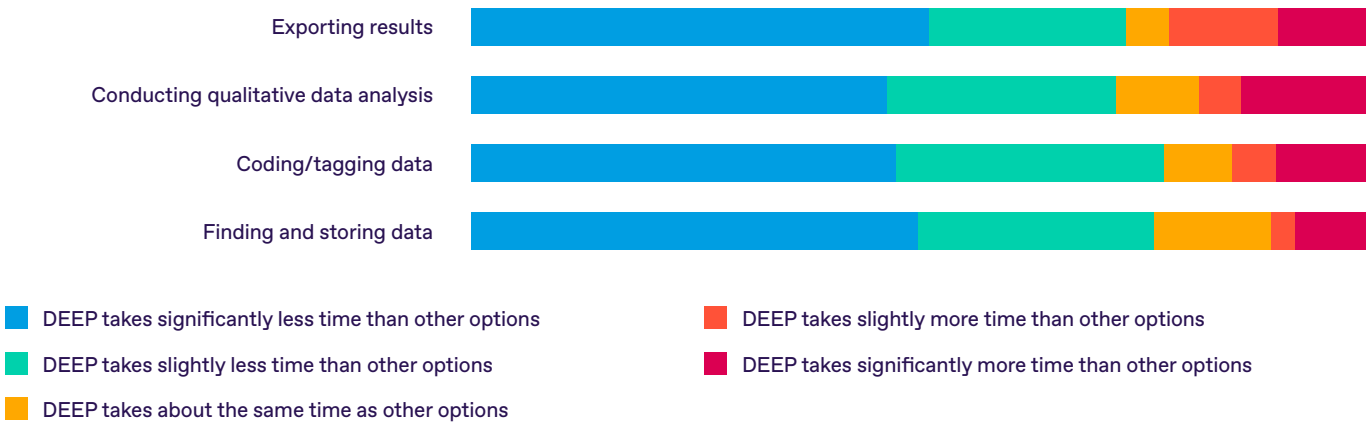
When users have learnt how best to use the platform, they often find it becomes time saving, and that the time saving benefits increase with time:

> **"Even if it takes the exact same time or more, it's a much better job. Now it's there. Old school way is a notebook and somehow survive.**
>
> **And then it's gone, the material is basically inaccessible. Now if its in DEEP and is categorised, can see what was said last year"**
>
> (Interviewee)

DEEP Data Analysts are by far the most likely group to report that DEEP is a time-saving tool. Despite the issues with the export function, the fact that analysts can "get a quick overview of what is being produced" (survey respondent) is seen as particularly helpful. DEEP is also time and resource saving from a decision-making perspective. In the case of the COVID-19 projects undertaken on DEEP, the ability to systematically structure qualitative data on a large scale reduced the need for primary data collection.

> **People were a bit amazed to see how info collected by others in systematic manner reduces burden on primary data collection**
>
> (Interviewee)

Figure 12: Survey users views of how much DEEP saves time



Measuring Impact

Those involved in uploading and tagging sources are more likely to think that DEEP adds time to analytical processes. Although considered itself an easy and quick process, in giving organisations the ability to structure vast amounts of qualitative data, the workload increases. Various organisations have told us they have had to (or are planning to) hire workers or assign volunteers to tag the increasing data. In this sense, while DEEP facilitates better analysis it also facilitates more analysis and additional needs for the sector. Interviewees also reported that organisations were unlikely to support costs associated with hiring tagging teams on a long-term or wide-scale basis. Automation of tagging was frequently raised as a needed improvement to DEEP to minimise the additional resources spent.

Even DFS and Togglecorp were unable to keep up with the amount of data that exists. In the case of the ongoing conflict in Ukraine, for example, they must narrow down the average of 400-500 sources available monthly and focus tagging efforts on around 150-170. Importantly, they stressed the need of allocating work according to types of sources. Multiple media articles may report the same facts and having one tagger dedicated to media sources is a system used to minimise the duplication of tagging and ensure data insights are not lost.

Table 4: Time saved and lost in the DEEP

	Time saved	Time added
Uploading sources	Using connectors Uploading en masse	Not being able to add information such as date or publisher en masse Duplication detection does not always work well
Tagging sources	If can use tagging from other projects	Takes longer than expert judgement Can result in need to hire new taggers to keep up with tagging Need to train taggers conceptually and technically
Assisted tagging	One user reported considerable time saving	Few users believe the NLP function saves time
Using analytical frameworks	If using/ adapting existing frameworks If analytical framework is well developed and understood	Those involved in setting up new analytical frameworks find it difficult and time consuming to do so in the early phases Can lead to work spent to develop new analytical frameworks In training taggers to understand framework in common way
Exporting	Searching and filtering entries	Not intuitive, users spend time trying out various options
Reporting	Easy access to valuable information	Need to synthesise often vast amounts of data creates a new step of analysis

Accessing technical support

The development of technical support documentation and videos has not been a top priority for DEEP over the past 12 months due to resource constraints and the frequency of platform updates. We note this is an upcoming project for DEEP following recent funding and have thus examined the technical support on offer to users to understand how DEEP can best support its users moving forwards.

There is a clear demand for additional support according to those we interviewed and surveyed. Additionally, the DEEP team, led by DFS has recently begun monthly live online demonstrations. The first in October, which was advertised via LinkedIn, attracted over 25 attendees, many of whom were new to DEEP, having heard of it, but never used.

DEEP's online support pages are the most common place users go for support according to the survey. They include a FAQ section, blogs and short posts concerning updates and a series of videos showing walkthroughs of key functions. Many videos are upwards of 20 minutes, do not include captions or non-English translations, and often show users making errors and encountering bugs. They do not appear to have been edited and are not accompanied by screenshots or text. They are inaccessible, requiring video with audio enabled to be understood. Only 1 request for support has been logged.

On the Skype DEEP support chat there are over 230 users with more than 6,000 messages submitted since 2018. Here, much more frequent updates about releases and bug fixes are provided. We identified at least 100 issues and bugs that were submitted and either resolved or added to the 'roadmap' or list of desires alongside improvements and feedback on new functions. Interviewees reported that weekly discussion sessions for certain projects were particularly useful in helping users learn to use the platform and overcome initial hurdles. Although some respondents are frustrated by the inability to quickly see a log of reported and addressed issues.

The Skype community seem well connected on a personal level: there are informal conversations, jokes, and references to in-person meetings. The community also appear highly engaged and positive about DEEP, although the informality and existing personal connections may make this place difficult to enter for those not already connected. While we recognise the value of the Skype community for the development of DEEP, rather than a space for testers, it has become the de facto support channel. It is neither open nor accessible to the wider user-base, less than a third of survey respondents have accessed either the Skype or Slack group.

No change happened because we couldn't use it properly. It should be simplified, add wizards, re write help files for users not for developers.
(Survey respondent)

Potential Use Cases

Identifying potential use cases for the future of DEEP is a key element to our review. There are many potential use cases for DEEP within and beyond the humanitarian sector. Here, we have focused on four potential use cases that have emerged as important through the research and through discussion with the DEEP Oversight Committee.

Primary qualitative data collection and analysis

Although DEEP has been developed as a platform for secondary data analysis, we encountered several participants that use DEEP to collect and analyse primary data as highlighted in Case Study 5.

Through the platform safari, our team used DEEP to upload and tag primary data – interview and focus group notes, qualitative comments from the survey. Indeed, we only uploaded three secondary sources – documents and reports sent to us by participants.

Often, DEEP is used in tandem with KoBo Toolbox here, wherein KoBo is used to collect data which is uploaded to DEEP. While there does not seem to be a case in adding specific data collection functions to DEEP, moving forwards in the current plans to integrate with KoBo Toolbox is required.

It is also important to better publicise the ability of DEEP to facilitate the analysis of primary qualitative data, and to ensure this is reflected in the visioning of DEEP.

> Other elements like data collection component would help DEEP to become famous
>
> (Interviewee)

Data gap analysis

While not an original goal of projects, we have spoken to multiple organisations that have brought attention to the ability of DEEP to facilitate data gap analysis.

As tagging according to analytical frameworks occurs, users can get a snapshot of where data does and does not exist according to key pillars in the framework. This information can then be used for decision-making purposes, as data gaps can be used to direct future data collection activities (whether primary or secondary) and associated funding. In many ways, DEEP has the potential to provide a quantitative assessment of data gaps. By structuring data, DEEP allows patterns to emerge.

This is an important potential use case of DEEP, particularly given that there is so much data that it has previously been very difficult to bring attention to where gaps may exist. This would further allow DEEP to contribute to wider humanitarian data goals.

No changes to DEEP are required for this to become an important use case, however, it has been suggested that a way to see the number of tags per pillar would be useful to facilitate data gap analysis more quickly. Further, creating a guide demonstrating how users can use the results of a tagging exercise to highlight data gaps could be a useful resource to ensure users are aware of this potential use case.

Human rights and media monitoring

Human rights, like the humanitarian world, faces struggles in managing, structuring, and sharing vast amounts of qualitative data. There is enormous potential for DEEP to service human rights analysis.

Working with human rights organisations to develop suitable analytical frameworks and reflect on how well features and terminologies translate is needed to ensure the community's needs are met. Human rights analysis has a greater need for media monitoring than the humanitarian sector. Media monitoring occurs already on DEEP but not to scale. There are clear difficulties associated with media monitoring and the proprietary rights of media outlets – and existing competition from specialist platforms which must be addressed for the platform to be truly suitable for human rights. Considering that IDMC, with support of DFS, is developing a media monitoring platform that scrapes news, DEEP could look to integrate with such a platform.

There is also scope within this to work with academic institutions undertaking human rights analysis. Increasingly, researchers in academia are facing pressures from funders to make data open as well as pressures from institutions to demonstrate the impact of their work. There is also potential to engage academic research institutions and funding bodies to recognise DEEP as a space to host humanitarian research, and the potential to engage academic researchers and students in contributing to tagging operations.

Small research operations

As noted, DEEP shares many similarities with NVivo, but is free. It also facilitates collaborative work to a much higher standard than NVivo and other similar proprietary platforms. Our platform safari demonstrates it has applicability in conducting SWOT analysis. Several interviewees noted it would have been useful in graduate school, while others have reported using it for personal research projects.

While it is unfeasible for DEEP to compete with NVivo in large well-resourced research institutions, there is an extensive market in smaller organisations, as well as for organisations based in resource-poor locations where access to software such as NVivo is more limited. The project management features are an additional bonus in this respect.

Recommendations

The comprehensive review of DEEP indicates that DEEP has facilitated and improved the culture of qualitative secondary data analysis in the humanitarian sector. However, the current impact of DEEP does not match its potential.

We have developed a series of recommendations intended to help DEEP widen its reach, deepen its impact, and ultimately transform the culture of data analysis across the humanitarian sector and beyond.

In many ways, the challenges faced by DEEP are to be expected for a start-up moving from early development to growth. The seed and early stage of development are all about getting the product or service right. This is when the product is being prototyped and tested with real users. The growth stage is about establishing a robust and scalable product and organisation. The focus is on developing strategic partnerships with people and organisations that can support the development of the product and create a virtuous circle of user feedback refining the service, and gaining more users. It is also about establishing systems and processes that can support the next phase of development. These may be around expanding the governance structure to bring in new technical knowledge or influential stakeholders. It is also about creating open and transparent processes that validate the approach taken by DEEP.

DEEP has the potential to become the KoBo of humanitarian analysis – the go-to tool everyone has heard of. Indeed, DEEP has the potential to become a synonym for qualitative analysis in the sector. But without active processes to engage a broader user group, DEEP risks becoming defunded and defunct as many other humanitarian tools have.

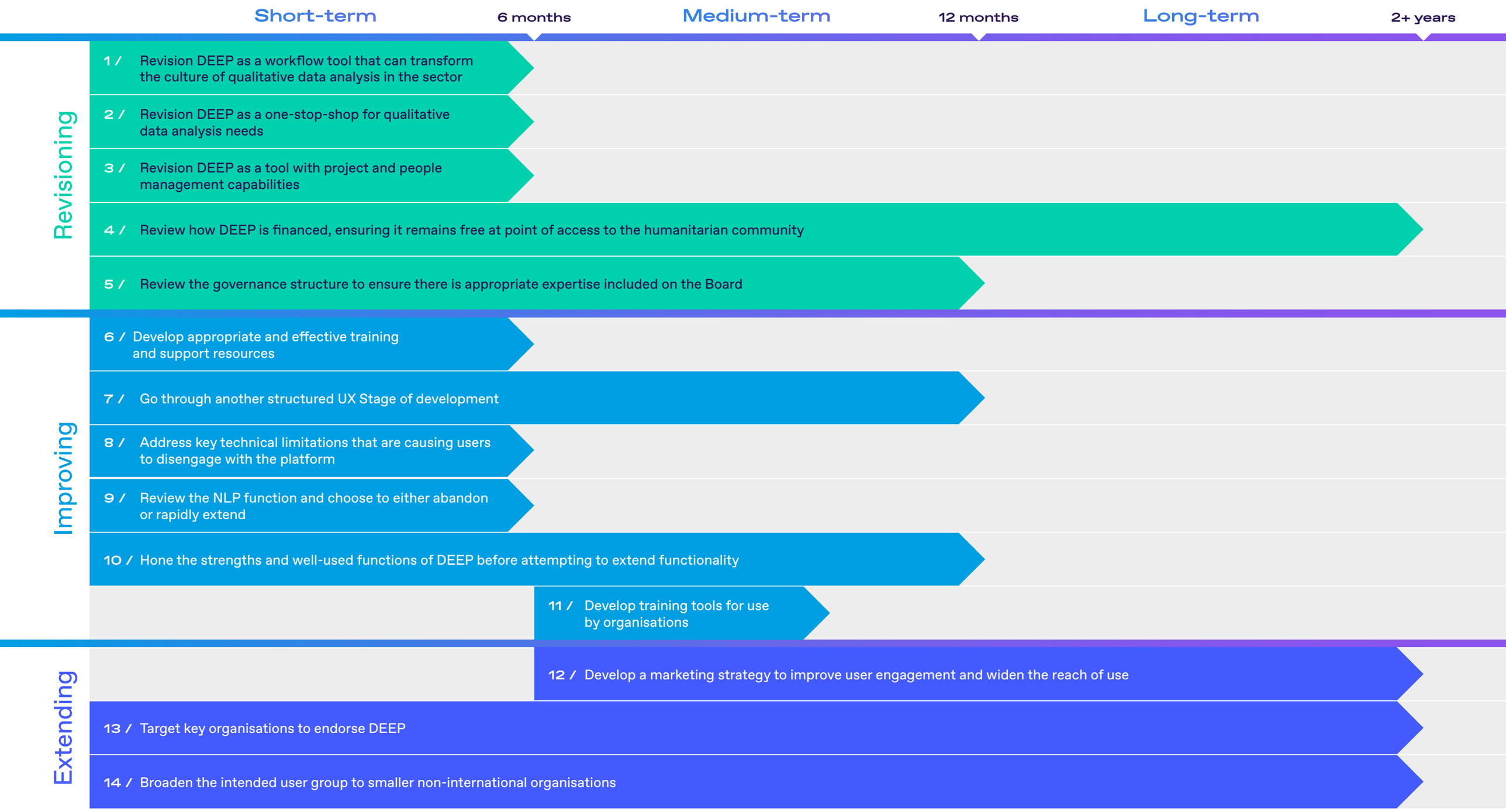
The review has identified three major three barriers that prevent DEEP from realising its potential of becoming the go-to tool for qualitative data analysis in the humanitarian sector and beyond, and to transition out of its start-up stage. These are: the purpose of DEEP is not clearly defined to users and potential users; there are significant barriers to user experience; and there is no defined marketing or user engagement strategy.

Responding to this, a series of recommendations have been developed that aim to move DEEP out of this start-up phase and progress into a growth stage. The recommendations have been refined following discussion with the DEEP Board, and we have undertaken a feasibility assessment and prioritisation activity. Our recommendations align with the 2022-25 objectives and provide concrete ways by which these objectives could be achieved. They address three key areas:

- Recommendations pertaining to the conceptual vision of DEEP.
- Technical recommendations to improve user experience and satisfaction.
- Recommendations to widen the use and impact of DEEP.

These three areas also reflect the stages in which recommendations should be addressed. There first, with immediate effect, should be clarity as to what DEEP is and how it can best support the humanitarian sector. Technical changes should also be implemented to improve the user experience and satisfaction of existing users. Only when this has occurred, should DEEP seek to expand its user base through a marketing strategy. We have thus developed a roadmap to guide the development of DEEP over the next two years.

DEEP Recommendations Roadmap



Revisioning DEEP

The ways that DEEP is used in some ways differ from its intended use and conceptualisation. This presents an interesting opportunity to re-energise DEEP's underlying vision. This is important to drive the future strategic mission of DEEP.

1 / Revision DEEP as a workflow tool that can transform the culture of qualitative data analysis in the sector

DEEP is not just used as a tool to analyse qualitative data but is a platform that facilitates and guides the introduction or improvement of analytical processes and frameworks.

This capacity should be better captured in and reflected in conceptual discussions and developments of DEEP. It should further influence technical development and resource allocation as well as the marketing strategy of DEEP.

Priority:	1
Timeframe:	Short-term
Resources:	Negligible, this largely requires the buy-in of the Board

Meeting DEEP strategic objectives

Make DEEP an indispensable platform for humanitarian analysis, providing a collective evidence-base for effective aid response.

Establish a joint analysis platform to integrate unstructured and structured data and expert input for robust and transparent joint analysis in close collaboration with and between data providers in the humanitarian eco-system.

2 / Revision DEEP as a one-stop-shop for qualitative data analysis needs

DEEP has primarily been conceptualised as a tool for qualitative secondary data. However, the review has found that the humanitarian community also has a need to analyse qualitative primary data, and that DEEP is able to facilitate this. DEEP should therefore be re-visioned and promoted as a one-stop-shop for qualitative data analysis.

To do so, further integration of, and where possible collaboration with other humanitarian qualitative data tools would be important. In particular, targeting KoBo Toolbox to integrate qualitative data collection.

Priority:	2
Timeframe:	Short-term
Resources:	Negligible, DFS/Togglecorp have the capabilities to facilitate integration

Meeting DEEP strategic objectives

Make DEEP an indispensable platform for humanitarian analysis, providing a collective evidence-base for effective aid response.

Recommendations

3 / Revision DEEP as a tool with project and people management capabilities

DEEP is not just used as a data analysis platform but as a tool to facilitate peer review, undertake project management tasks, and manage volunteers. There is a need to harness this ability to better support projects hosted on DEEP.

This should be better captured in and reflected in conceptual discussions and developments of DEEP. It should further influence technical development and resource allocation as well as the marketing strategy of DEEP. The Quality Assurance functions should also be clearer on DEEP, and perhaps renamed.

Priority:	3
Timeframe:	Short-term
Resources:	Negligible, this largely requires the buy-in of the Board and some low-effort technical tweaks

Meeting DEEP strategic objectives

Make DEEP an indispensable platform for humanitarian analysis, providing a collective evidence-base for effective aid response.

Establish a joint analysis platform to integrate unstructured and structured data and expert input for robust and transparent joint analysis in close collaboration with and between data providers in the humanitarian eco-system.

4 / Review how DEEP is financed, ensuring it remains free at point of access to the humanitarian community

Charging humanitarian users to access or use DEEP would likely be catastrophic to its use. However, dependency on an uncertain funding landscape is a substantial risk, which impacts the way DEEP can plan for and address strategic objectives. Continuous funding for ongoing development would alleviate this barrier and allow for progressed and evenly distributed improvements across the platform.

There are various options that could be considered; however, we recommend that a further review is undertaken to develop a strategy for financing DEEP.

1. Ensuring bespoke changes developed for organisations are supported financially.
2. Charging non-humanitarian users only and relying on HiD verification or humanitarian organisations requesting free access to allow the humanitarian community to have free use.
3. Charging users who exceed a certain data threshold. Large organisations that have resources to pay would effectively support the use of smaller organisations. Service level agreements should be in place in this case.

Priority:	3
Timeframe:	Long-term
Resources:	Dependent on the route(s) chosen

Meeting DEEP strategic objectives

Scale, expand and improve efficiencies of DEEP services to provide the platform for strong evidence-based situational, risk & predictive analysis in support of country-led joint intersectoral, sectoral and individual agency objectives.

Make DEEP an indispensable platform for humanitarian analysis, providing a collective evidence-base for effective aid response.

Recommendations

5 / Review the governance structure to ensure there is appropriate expertise included on the Board

We do not necessarily recommend increasing the number of representatives on the Board and recognise that already competing interests have pulled DEEP in perhaps too many different directions. However, there is a need for better defined roles on the Board, and a need to ensure the Board better represents the needs of the broader humanitarian community. There are three key elements that should be addressed:

1. The Technical Advisory Group needs to do more to engage with innovators, data experts, and user experience experts beyond the sector. It is unfeasible to expect the skills required to exist only within the humanitarian community. As it stands, the Technical Advisory Group is more of a user group.
2. Users should be represented on a user committee, but we don't recommend this is formally incorporated into the Board and should be seen as more of a working group.
3. There should be a defined Product Manager with responsibility for defining the product and purpose, with a mandate to engage with users to represent their needs to developers and to translate developments into user-friendly terms.

Priority:	3
Timeframe:	Medium-term
Resources:	Negligible

Meeting DEEP strategic objectives

Expand and grow the network through strategic partnerships and technical collaborations for technology enhancement, data integration, and joint ventures & funding

Enhance the use of the platform through promoting best practices, branch standards and policies and provide learning and targeted capacity building.

Establish a joint analysis platform to integrate unstructured and structured data and expert input for robust and transparent joint analysis in close collaboration with and between data providers in the humanitarian eco-system.

Improving User Experience and Satisfaction

In many ways, DEEP has developed and grown as a tool made by developers for developers. There are many elements of DEEP that are not intuitive to non-expert users, regardless of whether the functions work.

6 / Develop appropriate and effective training and support resources

There is an urgent need for extensive and up-to-date user guides and support resources. Resources should be targeted towards the four key user groups we have identified to be most effective. We also recommend shorter accompanying cheat-sheet user guides to enable more casual use of DEEP.

Resources should also be accessible and presented in multiple mediums including text-based and video-based. They should be available in Spanish (as a minimum) reflecting growing numbers of users in Spanish-speaking regions.

Priority:	1
Timeframe:	Short-term but ongoing
Resources:	Intensive, requires technical expertise of DEEP alongside understanding of UX and use journeys. External expertise is likely required to work alongside a DEEP product manager

Meeting DEEP strategic objectives

Enhance the use of the platform through promoting best practices, branch standards and policies and provide learning and targeted capacity building.

7 / Go through another structured UX Stage of development

A more structured approach to User Experience is needed. Issues such as accessibility, inclusion and usability across a range of devices need to be incorporated into the continued development of the platform. Where needed, specialist UX support should be brought it. We recommend using the Technical SWOT table in Appendix VI to guide the stage of UX development.

Priority:	1
Timeframe:	Medium-term
Resources:	Intensive – likely requires external expertise

Meeting DEEP strategic objectives

Make DEEP an indispensable platform for humanitarian analysis, providing a collective evidence-base for effective aid response.

Recommendations

8 / Address key technical limitations that are causing users to disengage with the platform

We have identified certain specific technical issues that must be addressed with urgency given their impact on usability and likeliness of causing users to abandon the site. Other issues are in the Technical SWOT table in Appendix VI.

1. Rebuilding the assessments module, which was not rebuilt in the recent UX redesign activity. As such, the platform is essentially calling on the old version when an assessment is accessed. This severely affects the speed of this process.
2. Extending the dashboard capability for frameworks other than the JIAF and improving their function so users can easily make them themselves – currently these need to be built by request or built from scratch using an API.
3. Speed up creating the files from exports.
4. Speed up extracting text from sources.
5. Introduce a full text search capability to the extracted text from sources.
6. Introduce a geoservers capability to enable new functions in spatial data and mapped data insights, rather than naming geoareas as a string label.
7. Combining the two organisation databases and establishing approval functions for organisation administrators to address this usability issue.
8. Change the date settings when uploading and exporting sources to be more user friendly and intuitive. These cause significant dissatisfaction across user groups.
9. Fix issues in Unicode when uploading and tagging sources.

Priority:	2
Timeframe:	Short-term
Resources:	DFS/Togglecorp have the capabilities to address these issues

Meeting DEEP strategic objectives

Scale, expand and improve efficiencies of DEEP services to provide the platform for strong evidence-based situational, risk & predictive analysis in support of country-led joint intersectoral, sectoral and individual agency objectives.

9 / Review the NLP function and choose to either abandon or rapidly extend

NLP itself is moving towards being useful, but has not been represented to potential users well, and considering that automation is increasingly moving into elements of daily life, potential users expect automation, but receive assistance. While we appreciate the ultimate goal is more automated extraction of data, the NLP feature is not working as promised. This is impacting user experience, not matching user expectations, and causing some users to abandon or not engage with the platform.

There are two potential solutions here:

- Discontinue development of the feature and reallocate resources towards improving other features (we recognise that funding has been allocated to additional development and this is unlikely to be feasible).
- Rapidly extend and improve the feature so that it can be used on scale across frameworks within the next 3-6 months. Usability issues must be addressed, and guidance should be given to users as to how to best use the feature.

Recommendations

Priority:	2
Timeframe:	Short-term
Resources:	DFS/Togglecorp have the capabilities to address these issues, but external expertise may be useful to expand

Meeting DEEP strategic objectives

Make DEEP an indispensable platform for humanitarian analysis, providing a collective evidence-base for effective aid response.

10 / Hone the strengths and well-used functions of DEEP before attempting to extend functionality

In terms of extending functionality, we recommend a cautious approach in which DEEP plays on and hones its strengths rather than attempting to further extend functionality. Indeed, most users feel DEEP has enough functions, and their fundamental issues concern flaws with existing issues.

DEEP is primarily used for uploading, integrating, and tagging sources, exporting structured data, and managing projects. Focusing on getting these functions seamless should be a priority.

Priority:	3
Timeframe:	Medium-term
Resources:	DFS/Togglecorp have the capabilities to address these issues

Meeting DEEP strategic objectives

Make DEEP an indispensable platform for humanitarian analysis, providing a collective evidence-base for effective aid response.

Scale, expand and improve efficiencies of DEEP services to provide the platform for strong evidence-based situational, risk & predictive analysis in support of country-led joint intersectoral, sectoral and individual agency objectives.

11 / Develop training tools for use by organisations

Developing training materials that organisations can use (with some elements to adapt) would be preferable than organisations creating in-house guides that do not fully appreciate the potential uses of DEEP or include errors. This further ensures DEEP can retain control over messages about how it should be used – and would also support the recommendation to re-vision DEEP as a culture change tool.

Priority:	5
Timeframe:	Medium-term
Resources:	Intensive, DFS/Togglecorp have the capabilities to address these issues

Meeting DEEP strategic objectives

Enhance the use of the platform through promoting best practices, branch standards and policies and provide learning and targeted capacity building.

Widening the Reach of Use

Although extending user engagement was not an explicit goal of the review, we believe it is important for DEEP to consider its user engagement to ensure use of the platform expands to allow DEEP to address its overall goals of sectoral collaboration and information sharing.

The following recommendations should only be implemented when the purpose and vision of DEEP has been reconceptualised, and when key UX issues have been addressed.

12 / Develop a marketing strategy to improve user engagement and widen the reach of use

A marketing strategy for DEEP should be developed and implemented as a high priority. Any strategy must:

1. Clarify the purpose, taking on board the conceptual recommendations listed above.
2. Not over-state functionalities and raise expectations unnecessarily.
3. Be timely – the review indicates much communication so far has been quite future focused on the potential of DEEP rather than its realities.
4. Draw on not just those connected to the Board, but the broader group of Diehard Influencers who are ready to become champions for DEEP.
5. Target the sector as a whole, breaking beyond the core engaged group of users.

Priority:	2
Timeframe:	Medium-long term
Resources:	Negligible, although external expertise may be useful

Meeting DEEP strategic objectives

Expand and grow the network through strategic partnerships and technical collaborations for technology enhancement, data integration, and joint ventures & funding.

Recommendations

13 / Target key organisations to endorse DEEP

There are key organisations that DEEP should (continue to) prioritise in forging and solidifying links in order for them to formally endorse DEEP. In particular, DEEP should target:

- OCHA – OCHA have major influence in the sector and almost everyone we have engaged with from beyond the UN-affiliated and RCRC organisations has been introduced to DEEP via OCHA. OCHA have successfully helped move humanitarian workers onto other tools and platforms, such as KoBo, due to their levels of engagement with the wider humanitarian sector, and their role as trusted partners. They have reported that 10-15 countries are currently using DEEP.
- UNHCR have identified qualitative data analysis as their third workstream in data transformation a huge problem due to the amount of data they generate through their activities and partner organisations. They have also identified that they are open to working further with DEEP.

Priority:	3
Timeframe:	Long-term
Resources:	Negligible, draw on network of Board members

Meeting DEEP strategic objectives

Expand and grow the network through strategic partnerships and technical collaborations for technology enhancement, data integration, and joint ventures & funding.

14 / Broaden the intended user group to smaller non-international organisations

The review indicates that the concentration of qualitative data analysis expertise in a handful of organisations is a threat to the sector as a whole. If DEEP can assist in levelling-the-playing field through improving not just standards of analysis, but understanding of it, this is an important achievement. In this sense, then, while large organisations may offer the most value for DEEP, DEEP could perhaps provide the most value for smaller organisations who are otherwise much more limited in their capacity to structure, analyse, and share data.

Priority:	5
Timeframe:	Long-term
Resources:	Negligible, draw on network of Board members, encourage champions through user working group

Meeting DEEP strategic objectives

Make DEEP an indispensable platform for humanitarian analysis, providing a collective evidence-base for effective aid response.

Enhance the use of the platform through promoting best practices, branch standards and policies and provide learning and targeted capacity building.

Conclusion

The review has demonstrated that DEEP is a successful platform in terms of its ability to meet the needs of the humanitarian sector in qualitative data analysis.

DEEP has provided value to the sector in ways that were not initially imagined. It has proven to be effective for primary qualitative data analysis, for data gap analysis, and for analysis beyond the humanitarian sector in human rights and HDP-nexus work. DEEP is also useful as a project and people management tool. More than this, by guiding users through a process of developing or adapting an analytical framework, DEEP has become a way to change the culture of qualitative data analysis in the humanitarian sector.

Despite these strengths, DEEP is constrained by the limits of the humanitarian sector it attempts to serve. Many of the barriers to use identified in this review are the result of endemic issues facing the sector as a whole. These include: a lack of capacity and resources to understand and analyse qualitative data, a proliferation of often incompatible tools, approaches, and frameworks, unresolved concerns about data privacy, and a lack of structures to facilitate long-term investment in the development of data platforms and tools. Board members should leverage their influence within their respective organisations to address these sectoral-wide threats.

The review has also shown that DEEP has successfully been used across the humanitarian sector by a core group of highly engaged and satisfied users. While usability issues and a lack of structured user engagement strategy prevent the wider uptake of DEEP, many issues are easy to address. The recommendations provided should guide DEEP to reach its potential and allow more individuals and organisations across the humanitarian sector to experience the many benefits associated with going into the DEEP.

By guiding users through a process of developing or adapting an analytical framework, DEEP has become a way to change the culture of qualitative data analysis in the humanitarian sector.

Appendices

Appendix I:

Methodology for the comprehensive review of DEEP

An in-depth multi-method approach has been developed to undertake a comprehensive review of DEEP.

The approach draws on a variety of primary and secondary sources of data. A multi-faceted approach is vital to address the project aims and to ensure the review of DEEP is comprehensive.

Data Collection

Desk based review

To support the review, a series of dedicated desk-based reviews were undertaken. The reviews aimed to:

1. Describe and explore the DEEP interface.
2. Understand the relationship between DEEP and the wider humanitarian sector.
3. Understand debates and trends concerning qualitative data analysis in the humanitarian sector.

Documents provided by DEEP Project Manager, peer-reviewed documents and grey literature relating to DEEP and the use of data in disaster response and humanitarian aid were reviewed.

Data Audit

An additional aspect of the desk-based research was a light-touch data audit of data stored in DEEP based on Urban Foresight's existing data mapping templates. The data audit is not a critical element of the comprehensive review of DEEP, however it supports wider understanding of the relationship between DEEP – its main functions and characteristics – and its users. The data audit of DEEP draws on data exports from the platform. Informed by the DEEP KPIs, we have collected quantitative data concerning numbers and types of active members, numbers and types of active projects, frameworks used, geographic locations of projects, number and types of sources uploaded, completeness of projects, and organisations involved. Data was downloaded on 21st October 2022.

Digital safari

Digital safaris or walkthroughs are digital versions of ethnographic research methods such as participant observation. Researchers immerse themselves in digital spaces, observing and recording their own and other user practices. Our team set up individual user profiles on DEEP to better understand the interface and typical user journey. We also received a demonstration of DEEP by Data Friendly Space (DFS). As part of the safari, we developed a SWOT framework using a 1D matrix and explored the generic framework via a test project. This has given us a unique insight into the platform and has greatly enriched our findings. This process also included accessing and reviewing the DEEP User Group support community on Skype where there are over 3,000 messages (approximately 60,000 words), as well as the support pages on the deephelp.zendesk.

Stakeholder interviews and focus groups

We have reached a total of 49 stakeholders via the interview and focus group programme. It must be noted, the interview user profile is not representative of the wider user base of DEEP but reflects the objectives of the stakeholder engagement.

- 30 stakeholders were engaged via semi-structured interviews. Initially, priority key-informants were identified in collaboration with the DEEP Project Manager and our team. Stakeholders include users of DEEP, specifically from the key countries targeted for SDR COVID-19 support; Project Managers and owners of projects on DEEP; general users; the DEEP Governance Board; the DEEP Technical Partner; and those working on DEEP improvement. The review further targeted non-DEEP users, non-UN agencies and smaller-scale NGOs that could benefit from training on DEEP for engagement.

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- Three focus groups were organised with key representatives of the DEEP community – one with members of the Steering Committee, one with members of the Technical Advisory Group, and one with six members of Togglecorp. In total, 23 stakeholders were engaged via the focus group discussions, four of whom were also interviewees.

User satisfaction and experience survey

A user satisfaction and experience survey was developed to better understand how the platform is used. This is particularly important as some features including Natural Language Processing (NLP) are recent additions to the platform. The survey was administered via Microsoft Forms and advertised via DEEP mailing lists and existing social media channels by the DEEP Project Manager. It was emailed to 4,253 registered DEEP users. Survey questions were designed using findings from the desk review and data audit. They include a combination of closed and open-ended questions aimed to understand how users use DEEP, their satisfaction with the platform, case studies and potential use cases. Other questions are informed by the DEEP KPIs in order to understand the extent to which DEEP is meeting its intended aims. In total, 58 respondents completed the survey.

Analytical Approach

The variety of data sources requires a flexible approach to analysis.

For the platform data audit, three key tools were employed:

- An Entity Relationship Diagram (ERD) was identified as an appropriate tool for demonstrating the extent of types of data held on DEEP, and their functional relationships.
- A review of an export of aggregated data held on the platform. We reviewed: who is using DEEP the most, how many users are inactive, how many projects are unused, how much data is redundant etc.
- A review of the systems architecture. We sketched out a review of the connections and relationships between different servers, databases, and clients to act as a tool for making recommendations on improving the reactivity and security of the platform.

For qualitative primary data i.e., from interviews, focus groups, the survey, and our DEEP safari), a 1D matrix SWOT analytical framework was developed on DEEP. Data sources were uploaded and tagged according to the framework by members of the team. The export function was used to export findings into Word.

Survey data was exported from Microsoft Forms into Microsoft Excel.

Interview Schedule

General

1. Capture role/ sector/ geographic location, etc.
2. Challenges faced in using data in humanitarian work?
   a. Specifically on analysis
   b. Specifically on qualitative data

Using DEEP – Organisation perspectives/journeys

3. How did you find out about DEEP?
4. Why did you start to use it?
5. In what ways do you use DEEP?
   a. Practically – who in org, which type of projects (which not used for), how often
   b. which DEEP functions are used
      i. including Natural Language Processing
   c. Conceptually – which specific purposes/types of analysis
6. What did you use before/ alongside DEEP?
   a. Does DEEP replicate? Fill gaps?
7. How does DEEP differ in terms of the time commitment compared to other options?
   a. Initial set-up versus ongoing analysis
   b. Time saved versus time spent
   c. Do the benefits of DEEP for your organisation outweigh this? Is it worth it?
8. (How) does DEEP help your organisation achieve its goals?
9. Is your organisation likely to continue using DEEP?

User experience and satisfaction

10. Overall, how do you find using DEEP?
11. Are there issues when using DEEP? What are they?
12. What is missing from DEEP? Improvements?
13. Are there processes that DEEP currently doesn't support but could?

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14. Can you give us an example where DEEP has been particularly helpful for your organisation?
15. Can you give us an example where DEEP has been used for something you think might be quite innovative?

DEEP objectives and goals

16. (How) does DEEP help you align with other frameworks and approaches and agreements? (e.g., JIAF, GIMAC, Grand bargain, HNOs, etc.)
17. To what extent does DEEP facilitate:
    a. Transparency, information sharing
    b. Collaboration
    c. Secondary data analysis?

Interview and Focus Group Programme

Interview Participants

Name	Organisation	Relation to DEEP
Abba	El-Kanemi Memorial Foundation	DEEP user
Alexander Kjærum	DRC	DEEP user/stakeholder
Andy Thow	INFORM	Stakeholder /potential collaboration
Angeliki Nika	ACAPS	Non-User
Anonymous 1	KoBo Toolbox	Non-User
Anonymous 2	UN-affiliated organisation	Non-User
Anonymous 3	UN-affiliated organisation	Non-User
Corey Dickinson	IFRC	DEEP user/SDR consultant
Fawad Hussain	OCHA	DEEP Technical Advisory Group
Guido Pizzini	iMMAP	Former DEEP PM
Hassan Ibrahim	UNHCR	Non-User
Helen Leidecker	Operations Partnership	DEEP user/SDR consultant
Hussam Saeid	German Red Cross	DEEP user
Jada Jacob	REACH	Soon-to-be DEEP user
James Sparkes	DFS	DEEP user/SDR consultant
John Marinos	UNHCR	DEEP Technical Advisory Group

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Name	Organisation	Relation to DEEP
Juan Munoz	DRC	DEEP user
Juan Rua	DRC	DEEP user
Justin Ginnetti	IFRC	DEEP user
Kumudu Sanjeewa	OCHA	DEEP GIMAC
Laura Swanson	UNHCR	Non-User
Leonie Tax	NA	DEEP user
Lina Gonzalez	DRC	DEEP user
Luis Fanovich	IFRC	DEEP user
Maika Skjonsberg	UN RCO	DEEP user
Marcela Duran	DFS/iMMAP	DEEP user
Monir Wahas	IVC Yemen	Non-user
Patrice Chataigner	Okular Analytics	DEEP Technical Advisory Group
Shreeti Kafle	DFS/TC	DEEP user
Sylvain Ponserre	IDMC	DEEP Technical Advisory Group
Vincent Annoni	IFRC	DEEP Technical Advisory Group

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Focus Group Participants

Name	Organisation	Relation to DEEP
Andrew Alspach	OCHA	DEEP Steering Committee
Anwar Mahfoudh	UNDCO	DEEP Technical Advisory Group
Cecilia Utas	DEEP/DRC	DEEP Secretariat
Doug Smith	DFS	DEEP Technical Advisory Group
Erik Kastlander	OCHA	DEEP Steering Committee
Ewan Oglethorpe	DFS	DEEP Technical Advisory Group
Fawad Hussain	OCHA	DEEP Technical Advisory Group
Corey Dickinson	IFRC	DEEP user/SDR consultant
John Marinos	UNHCR	DEEP Technical Advisory Group
Kathrine Starup	DRC	DEEP Steering Committee
Kriti Chettri	DFS/TC	DEEP user
Nuri Sharashidze	DRC	DEEP Secretariat
Jose Cobos Romero	DFS	DEEP Technical Advisory Group
Venkatesh Balaji	OHCHR	DEEP Technical Advisory Group
Ximena Contla	DFS	Technical partner
Zineb Bhaby	iMMAP	DEEP Technical Advisory Group
Patrice Chataigner	Okular Analytics	DEEP Technical Advisory Group

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Survey Questions

Results to survey questions will be anonymised and sent to the Board in a separate document.

1. Name of your organisation
2. What is your role in the organisation?
3. Which area do you work in?
   - Humanitarian / Development / Other
4. Which thematic section(s) do you primarily work in?
   - Cross-sectoral
   - Food security
   - Livelihoods
   - Health
   - Nutrition
   - WASH
   - Shelter
   - Education
   - Protection
   - Agriculture
   - Logistics
   - NA
   - Other
5. Please list the geographic scope of your organisation
6. How long has your organisation used DEEP?
   - Less than 6 months / 6 months to 1 year / 1-2 years / more than 2 years / Only involved in testing
7. Why did you or your organisation start using DEEP?
8. Which role(s) do you do on DEEP?
   - Project owner (i.e., set up projects)
   - Contributor (i.e., tagging data in projects)
   - Reader (i.e., accessing and exporting data)
   - Other
9. Which other platforms and tools do you use for qualitative data analysis?
   - NVivo
   - MAXQDA
   - Atlas.ti
   - Microsoft Excel
   - Microsoft Word
   - NA – No other platforms or tools used
   - Other
10. Which other humanitarian data tools and platforms (if any) do you use?
    - KoBo Toolbox
    - HDX (Humanitarian Data Exchange)
    - The Humanitarian Dashboard
    - Assessment Registry (Survey of surveys)
    - ReliefWeb (HumanitarianResponse.info)
    - DSR (Digital Situation Reports)
    - Virtual OSOCC
    - GDACS (global disaster alert and coordination system)
    - OPS (Online projects system)
    - INFORM
    - 5Whats
    - Geospatial / GIS-based software
    - Rapidpro
    - SMSSync
    - Ushahidi
    - Humanitarian Atlas
    - SwiftRiver
    - Hashtracking.com
    - PDC Disaster AWARE / Disaster Alert
    - RiX (Risk Information Exchange)
    - IFRC: GO
    - NA – No other tool or platform used
    - Other
11. Does DEEP integrate with other data management tools that you use?
12. If yes, can you please describe how you integrate other data management tools with DEEP?
13. Which types of data analysis do you and your organisation use DEEP to facilitate?
    - Secondary data review
    - Situational analysis
    - Protection analysis
    - Risk analysis
    - Scenario-based forecasting
    - Media monitoring
    - Primary data collection
    - Information gap analysis
    - Other
14. Which functions do you use on DEEP?
    - Assessment registry
    - Facilitating collaborative work
    - Information sharing and exchange
    - Accessing real time crisis data
    - Accessing historic crisis data
    - Other
15. To what extent does DEEP help you facilitate the following types of analysis?
    - Inter-organisational collaboration
    - Intra-organisational collaboration
    - Inter-sectoral/ inter-cluster analysis
    - Sectoral or thematic analysis
    - Anticipatory /predictive analysis

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16. Can you give us an example where DEEP has been used for something you think might be quite innovative or different from the normal use?
17. Can you give us an example where DEEP has been particularly helpful for your organisation?
18. If you would be happy for us to share your example(s) as part of a series of DEEP Case Studies, please provide an email address and one of our team will get in touch with you
19. Since using DEEP, has your organisation changed its processes in regard to the collection, storing, analysis, and presentation of data?
20. Please explain any organisational changes to the collection, storing, analysis, and presentation of data since using DEEP?
21. How satisfied are you overall with DEEP?
22. Please explain your answer
23. How satisfied are you with the following functions of DEEP?
    - Creating new projects
    - Creating new analytical framework
    - Customizing standard /generic analytical framework
    - Uploading data sources
    - Accessing new data sources
    - Ingesting data from external data repositories (e.g., ReliefWeb)
    - Aggregating data
    - Utilising the assessment registry
    - Tagging or coding sources /data
    - Using assisted tagging (Natural Language Processing (NLP))
    - Exporting data
    - Managing users
24. What improvements or additional features/functions would you like to see with DEEP?
25. Have you experienced any issues with using DEEP?
26. What were the nature of those issues?
27. Which of the following places, if any, did you go to for support?
    - DEEP Support Webpages and videos (https://deephelp.zendesk.com/hc/en-us)
    - DEEP Community helpdesk (i.e., submitting support requests via https://deephelp.zendesk.com/hc/en-us)
    - Another online community (e.g., Skype, Slack)
    - Someone within your own organisation
    - I did not seek further support
    - NA
28. Was your issue(s) resolved?
29. Thinking back to when you or your organisation first started using DEEP, how easy, or difficult did you find it to do the following?
    - Setting up a new analysis framework
    - Customising an existing analysis framework
    - Setting up and managing users
    - Exporting project data
    - Uploading sources /leads
    - Aggregating data from connectors
    - Using assisted tagging function
    - Tagging /coding a document
30. How did you feel about the set-up process?
31. To what extent does DEEP save your organisation time today?
    - Finding and storing data
    - Coding /tagging data
    - Conducting qualitative data analysis
    - Exporting results
32. To what extent do you think that DEEP supports the humanitarian sector in achieving the following goals?
    - Promote collaborative work /processes
    - Promotes a more systematic approach to qualitative data analysis
    - Supports the wider humanitarian community (as opposed to just specific agencies)
    - Promotes information sharing
    - Promotes transparency
    - Minimises fragmentation
    - Minimises duplication of efforts
33. If you have any additional comments or thoughts about DEEP, please include them below

Appendix II:

List of DEEP Board Members

Governance Board Member	Sector	Funding
Danish Refugee Council (DRC)	International NGO	The DRC is donor funded. Donors include Aase og Ejnar Danielsens Fond, Bechgaards Fond, Bitten & Mads Clausens Fond, Augustinus Fonden, Carlsberg Foundation, Danish Ministry of Foreign Affairs, Government of Australia (Department of Foreign Affairs and Trade), DG ECHO, EU DEVCO, Foreign and Commonwealth Development Office, Global Affairs Canada, UN Office for Coordination of Humanitarian Affairs, Oak Foundation, SIDA, UNDP, UNICEF, UNHCR and US AID.[6]
International Displacement Monitoring Centre (IDMC) – part of the Norwegian Refugee Council (NRC)	Centre on behalf of NRC	Top five donors in 2021 were the NMFR, ECHO, UNHCR, The Swedish International Development Cooperation Agency (SIDA) and UNOCHA.[7]
International Federation of Red Cross and Red Crescent Societies (IFRC)	International Organization	IFRC has a Donor Advisory Group composed of donor governments, National Societies of those countries, and the EU. Top five Donor Advisory Group member country donors in 2021 were the US, European Commission, UK, Switzerland, and Sweden. Top five National Society donors in 2021 were British Red Cross, The Netherlands Red Cross, The Canadian Red Cross Society, Australian Red Cross, and Swedish Red Cross.[8]
Information Management and Mine Action Programs (iMMAP)	International NGO	Donors include the US Department of State, USAID BHA, EU, UN, and the World Bank Group.[9]
The Office of the United Nations High Commissioner for Human Rights (OHCHR)	UN Agency	More than half of OHCHR's budget comes from voluntary contributions from Member States and other donors. The remainder is covered by the UN regular budget. Top five donors in 2021 were Sweden, US, UNDP, Norway, and Germany.[10]
Okular-Analytics	Private Data Consultancy	Privately funded.

[6] Danish Refugee Council (No Date) https://drc.ngo/about-us/who-we-are/donors/

[7] IDMC (No Date) https://www.internal-displacement.org/partners

[8] IFRC (No Date) https://www.ifrc.org/resources/documents/donor-response

[9] iMMAP (No Date) https://immap.org/our-partners/

[10] OHCHR (No Date) https://www.ohchr.org/en/about-us/funding-and-budget/our-donors

Appendix II

Governance Board Member	Sector	Funding
United Nations High Commissioner for Refugees (UNHCR)	UN Agency	85% of UNHCR's budget comes from governments and the EU; 3% comes from other inter-governmental organizations and pooled funding mechanisms; 11% comes from the private sector, including foundations, corporations, and the public; 1% comes from the UN regular budget. Top five donors for 2021 were the US, Germany, EU, Japan, and Sweden.[11]
United Nations International Children's Emergency Fund (UNICEF)	UN Agency	In 2021, 73% of UNICEF's budget came from the public sector. This was mostly income from government partners including the EU. 26% came from the private sector. This was mostly income from National Committees, UNICEF Country Office private sector fundraising, and non-governmental organizations. 1% came from other income, including income from interest, procurement services and other sources. Top five donors in 2021 were the US, Germany, the EU, US National Committee and the World Bank Group.[12]
United Nations Office for the Coordination of Humanitarian Affairs (UNOCHA)	UN Agency	UNOCHA's top five donors in 2022 were the US, Sweden, the UK, Germany, and Norway.[13]
UN Development Coordination Office (UNDCO)	UN Agency	UNDCO is funded by the United Nation's Special Purpose Trust Fund

[11] UNHCR Global Focus (No Date) https://reporting.unhcr.org/donor-ranking

[12] UNICEF (No Date) https://www.unicef.org/partnerships/funding

[13] UNOCHA (2022) https://www.unocha.org/funding

Appendix III:

DEEP's Technical Features

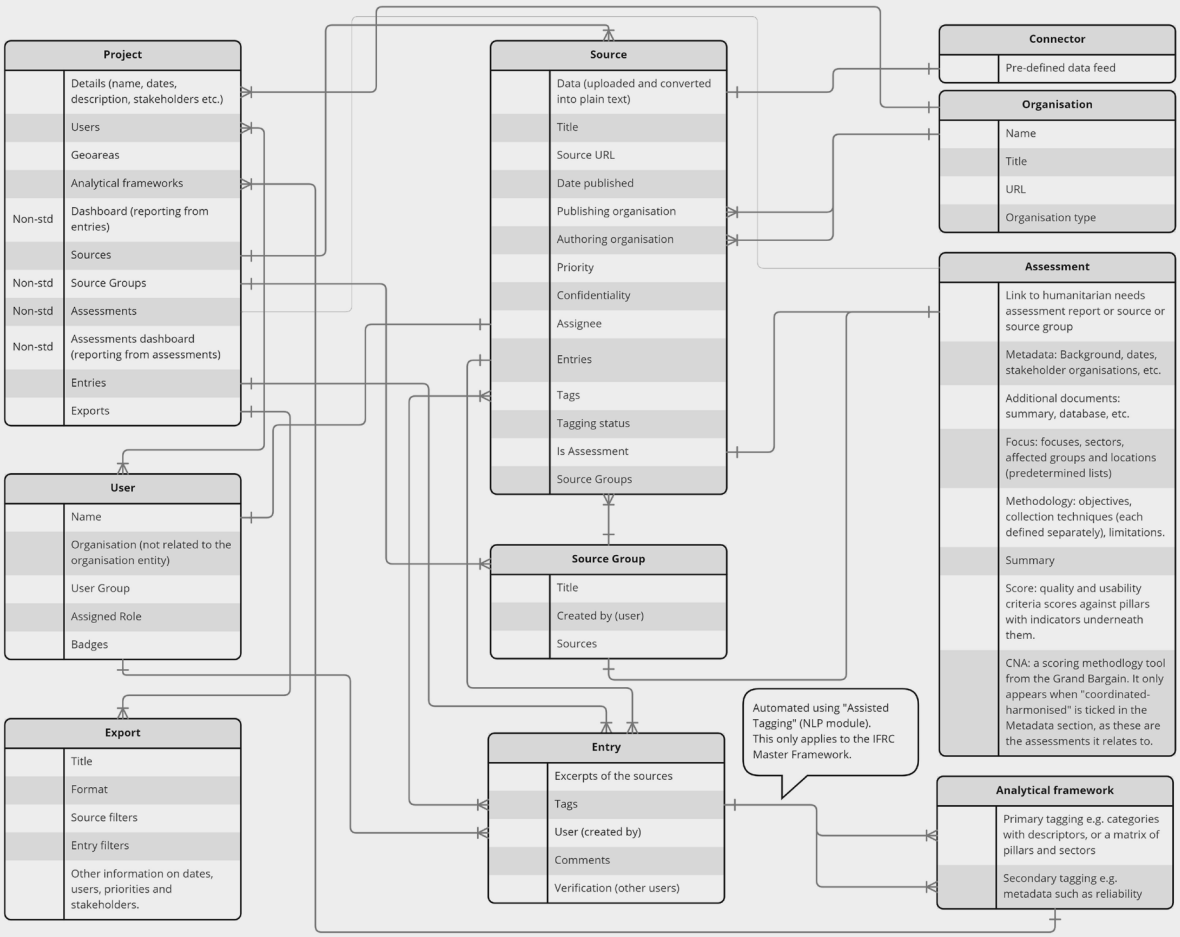
Relationship Diagram for DEEP

An ERD is typically deployed in relational database analysis activities in software engineering. It is a form of map that graphically represents each "type" of data as nodes, with their attributes listed, and connections between them drawn on. ERDs can be used to appreciate the different sets of data present on platforms or databases, and the action points that different users may take in their use of the tool. It ultimately acts as a snapshot of the platform's baseline functionality. This is useful for identifying user journeys and any pain points in them, or gaps in data and opportunities for improving data connections.[14]

The ERD demonstrates the different key data entities that users interact with. It also shows the relationships between entities and their cardinality, for example it shows that one project can have multiple exports within in, but that the exports are each only aligned with one project each. An accompanying table summarises the use of each of the entities for a typical DEEP user.

In recognising that this review is not going to be conducted as a fully compliant database relations review, we have made some key decisions in developing our ERD to simplify it and improve its ease of use:

1. Attributes: only truly key attributes that would be relevant to the entity's end user and their processes are listed.
2. Cardinality: relationship symbols are limited to one-to-many, one-to-one and many-to-many arrows only. This is sufficient in demonstrating the relationships between entities and attributes, without delving into potential overly complex relationship rules.



[14] Lucid Chart (2022) What is an Entity Relationship Diagram (ERD)?

Appendix III

Summaries of the Uses of the Data Entities on DEEP

Entity	Use
Project	A project is a key space on the platform for holding sources, analysis, assessments, and exports. There are over 2,300 projects on the platform. Users are invited to join projects or can request to join them themselves.
User	Individual profiles for users of the platform, which are entirely editable by the logged in user. This includes the name of the organisation that they are associated with, which is not related to a database of organisations.
Analytical framework	Each project can use one analytical framework for the tagging of salient insights within sources (see below). A user can create frameworks, or they could use one already on the platform. For example, the IFRC master framework has been set up on DEEP. This offers users the ability to tag excerpts of sources against descriptors – which themselves can be organised in categories or as a matrix of pillars and sectors (in the primary tagging module) – and the whole source against metadata fields including reliability (in the secondary tagging module).
Source	A source is a data set, for example, a website, qualitative report, or notes. Users upload sources and they are converted into plain text. Sources are each related to individual projects, but copies can be created in other projects. Details are recorded against the source (e.g., title, publisher) and users can assign it to another user for tagging. The tagging status of the source is also recorded. An assessment can be created from a source.
Organisation	The list of organisations that may be listed against projects as a stakeholder or be assigned against a source as an author or publisher. This is a separate list to the users' organisations.
Connector	Users can connect a source of data to a project (e.g., a particular publisher's website) to make the uploading of sources easier.
Source group	Sources may be added to a defined group within a project. Their main purpose is to group sources for then adding to the assessments registry.
Entry	An entry captures a tagging of a source by a user using the analytical framework. Sources can have multiple entries underneath them. They capture the excerpts and tags that a user creates. There are approval processes for users to verify or comment on an entry. When creating an entry using the IFAC Master Framework, there is an automation function called "Assisted Tagging". This uses NPL to automatically detect salient excerpts and suggest tags to the user.
Export	Exports are aggregate reporting formats that users can predefine and run as and when needed. In setting up an export, the user defines filters on either the sources or the entries. They can also categorise it as an assessment export and select the output format.
Assessment	A function for collating humanitarian needs assessments. Assessments spaces are created from external reports (inputted via a URL), sources, or source groups. Standard processes for analysing the methodology and metadata for assessments are enabled by the tool. Users can input a summary of the assessment and score its quality and usability against pre-determined criteria. For assessments that have been categorised in their metadata as being "coordinated harmonised" sources, a tool for conducting a CNA scoring is enabled. This is a standard assessment tool from the Grand Bargain.

Appendix III

DEEP's Architecture

DEEP is hosted on AWS (Amazon Web Services). Files (the plain text versions of uploaded sources) are stored on Amazon's S3 storage and are integrated with a database of all other DEEP data, like users, projects, and organisations, which is AWS hosted. The system that conducts the NLP processing is on a separate DEEPL server, but this is also within AWS. Much of DEEP is relatively new – the recent UX redesign initiative saw the platform overhauled. In this process, the majority of DEEP was rebuilt from scratch.

To protect DEEP's functionality whilst any improvements or new features are deployed to it, different versions of the platform are used. Local versions are downloaded for the initial build or development of a new function. Then, a staging server is used for testing new processes or functions. When ready, changes are then deployed on the production server, which is the live version of DEEP that is accessed by external users.

DEEP utilises around 6 serverless functions (Lambda functions) in AWS. These run on a separate AWS service – not DEEP's production server – and are only run when they are called upon. This saves costs, as it means that DEEP is not paying for the server space to sit idle whilst these functions are not in use. It does, however, mean that DEEP is more dependent on AWS. This makes it harder to deploy the platform into another environment, as the Lambda functions are integrated in AWS. This ability to apply the platform to other uses is key to the core design principle of DEEP being open.

Features of DEEP's Open Design

DEEP strives to be an open design that could be lifted and plugged into another product or used as a component part of a different workflow. All of the platform is open source and available for other developers to access on GitHub.

There are also APIs for developers or dashboard designers to access, so that they can input a data feed from DEEP into another process. This means that DEEP can potentially be used as a component part of a much larger workflow and analysis process. For example, OHCHR has previously setup DEEP to be a component of their media monitoring process. Dashboards can be created by any users using these APIs, and can even be made public, or hosted on a different website as a module.

In theory, the NLP module can be called on by other applications. It is still stored within AWS but sits on a different server to the rest of DEEP (a DEEPL server). This means that it could be used by other applications without affecting the speed or vulnerability of DEEP. But this proposition is currently still in development.

Security and Reliability

DEEP is backed up every day as part of the package of Amazon Relational Database Service (Amazon RDS) management services. The N2WS back up service is also employed by DEEP, which takes smaller "snapshots" of the environment throughout the day. This means that DEEP can confidently be restored in the event of any problems within a 30-day window.

DEEP is definitely reliable – reporting an uptime of more than 99.9% across the production environment since 2019.

In terms of security, AWS RDS offers good protection from bad actors. DEEP also utilises common security practices to manage the platform and maintain security, including:

1. Using a DSL (Domain Specific Language) so that data is obscured from being read inside of the database.
2. Using SSLs (Secure Socket Layers) to established secure links between networked computers and ensure that DEEP cannot be accessed by anyone outside of this network.
3. Requiring 2 Factor Authentication on developer logins.
4. Keeping all libraries and frameworks up to date when new versions are released.
5. Using separate webhooks in GitHub, so that sensitive data is not accidentally published to an open platform when an automatic process is triggered.
6. Conducting regular audits on user access rights.

Routine audits on DEEP's security are carried out by an external party. These audits produce an actions list of items to address to improve the security of the platform. So far, they have never flagged any critical issues.

Appendix IV:

Key Developments, Frameworks and Approaches in Humanitarian Data Analysis

The Cluster Approach – In 2005, the Cluster Approach was adopted during the Humanitarian Reform Agenda. The Cluster Approach outlines groups of humanitarian organizations in each of the main sectors of humanitarian action, such as health, logistics, nutrition, protection. These groups are designated by the Emergency Relief Coordinator which leads the Inter-Agency Standing Committee (IASC). The Cluster Approach supports efforts to strengthen functional coordination of humanitarian aid and disaster response.[15]

Inter-cluster coordination – The Cluster Approach promotes inter-cluster coordination at both national and sub-national levels to implement coordinated response within through each step of the Humanitarian Program Cycle (HPC).

The Humanitarian Program Cycle (**HPC**) – the HPC is a coordinated series of actions undertaken to help prepare for, manage, and deliver humanitarian response. It consists of five elements: needs assessments and analysis, strategic response planning, resource mobilization, implementation and monitoring and operational review and evaluation. The series of elements reflect a coordinated series of actions to help prepare for, manage, and deliver humanitarian response.

The Inter-Cluster Coordination Group (**ICCG**) ensures a coherent strategy and operational response across all sectors, bringing together inter-cluster analysis, assessments, plans and programs to establish linkages; minimizing duplications and enhancing complementarities.[16]

Grand Bargain was launched during the World Humanitarian Support as a solution to addressing needs, broadening resources, and improving effective action and delivery in the humanitarian sector.[17] DEEP was specifically developed to support the Grand Bargain on Needs Assessment, which is Workstream 5 of the Grand Bargain.

Joint Intersectoral Analysis Group (**JIAG**) is an inter-agency working group focused on developing methods and tools to enable stronger joint intersectoral analysis of needs in crises. The desired output is the Joint Intersectoral Analysis Framework (JIAF) and the tools, methods and training that will allow the JIAF to be systematically applied. The JIAG is OCHA Led, in partnership with the GCCG and supported by ECHO.

Joint Intersectoral Analysis Framework (**JIAF**) JIAF refers to a method, a model, a set of tools to do better analysis of humanitarian needs jointly and holistically. JIAF outputs – detailed accounting of people's combination of needs and associated factors by population group / area, survival and maintenance needs and their inter-relationship; identification of main factors or drivers of lives / livelihood needs; coping capacities; number of people in need; severity of needs; projection of needs. The main analytical output of the JIAF is the identification of current priorities by geographical areas, affected groups or main concerns/issues, and an anticipation of how those priorities will evolve.

[15] OCHA, "What Is the Cluster Approach? | HumanitarianResponse," 2022, https://www.humanitarianresponse.info/en/coordination/clusters/what-cluster-approach.

[16] OCHA, "Inter-Cluster Coordination Group (ICCG) | HumanitarianResponse," 2022, https://www.humanitarianresponse.info/en/operations/somalia/inter-cluster-coordination-group-iccg.

[17] Inter-Agency Standing Committee (2022) The Grand Bargain (Official Website) https://interagencystandingcommittee.org/grand-bargain

Appendix IV

Global Information Management, Assessment and Analysis Cell (**GIMAC**) is multi-stakeholder initiative, proposed jointly by several UN and non-UN partners. The Cell aims to coordinate, structure, collate, manage, and analyse COVID-19 related information and to provide technical support and service to support prioritised countries and global decision making based on a request. The GIMAC initially prioritised 25 countries with ongoing humanitarian action taking place. OCHA, UNHCR and WHO share responsibility for leading the GIMAC.[18]

Protection Analytical Framework (**PAF**) – The PAF guides in-depth and ongoing protection analysis of the crisis environment. It informs decision making for multisectoral and multi-disciplinary strategies that reduce and prevent protection risks that may violate international human rights and refugee and humanitarian laws. It is suitable for use across humanitarian contexts, including with internally displaced people, returnees, refugees, and mixed situations.

Multi-sector cluster Initial Rapid Assessment (**MIRA**) Framework – Accurate and timely information on the needs of people affected by emergencies is essential for the effective design of humanitarian programmes and equitable allocation of resources. It lays the groundwork for humanitarian decision-making and is crucial for humanitarian actors to target their assistance strategically, considering the severity, scale, and underlying causes of the disaster. To address these issues the Multi-Cluster Initial Rapid Assessment (MIRA) was developed. The MIRA framework covers the dimensions of status and impact, vulnerabilities and risks, and trends and information gaps in each of the following themes: 1) Drivers of the crisis and underlying factors. 2) Scope of the crisis and humanitarian profile. 3) Status of populations living in affected areas. 4) National capacities and response. 5) International capacities and response. 6) Humanitarian access. 7) Coverage and gaps. 8) Strategic humanitarian priorities.

Tools such as Common Operational Datasets and Humanitarian eXchange Language (**HXL**) aim to assist in the structuring of data. CODs are the 'authoritative reference datasets to support' humanitarian operations and decision-making, provide a geographic framework for the collection, analysis, and visualisation of data. HXL is a data tagging standard that works by adding hashtags to the top of columns in spreadsheet formats such as CSV or Excel, developed and managed by UNOCHA. HXL is more flexible and can be adapted to suit operational terminology. By using consistent and shared language, innovations such as CODs and HDL aim to simplify data management processes, facilitate data sharing, and ultimately, help a common operational picture of a crisis and solution to emerge.

The Centre for Humanitarian Data, managed by OCHA is an important actor in regard to shaping practice concerning data in the humanitarian sector. Although its remit is largely focused on quantitative data analysis, there are some resources concerning qualitative data. The Centre, in various collaborations has developed tools and guidance for needs assessment and analysis. It has four key remits 1) data services; 2) data literacy; 3) data responsibility; and 4) predictive analytics. Further, OCHA's Information Management Toolbox – an "online space for OCHA's Information Management staff to access current and curated information tools, services, and systems to support humanitarian response and preparedness coordination." OCHA is also involved in data collection activities, often through smaller commissioning community-based NGOs and consultancies to undertake the work. The IM Toolbox describes DEEP as "a tool to collect and analyse secondary data from various publications such as websites and PDF reports." There is limited information on DEEP compared to OCHA-produced products and services. DEEP is not discussed or suggested as a potential tool for qualitative analysis on any further sites.

[18] "Overview of the Global Information Management, Assessment and Analysis Cell (GIMAC) on COVID-19 – World | ReliefWeb," 2022, https://reliefweb.int/report/world/overview-global-information-management-assessment-and-analysis-cell-gimac-covid-19.

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ACAPS is an independent information provider and is not affiliated to any other organisation. It was established in 2009 "with the aim of conducting independent, groundbreaking humanitarian analysis to help humanitarian workers, influencers, fundraisers, and donors make better-informed decisions"[19]. ACAPS encourages organisations and individuals across the humanitarian sector to implement more collaborative approaches. ACAPS is involved in capacity building through providing training sessions and workshops and runs a Humanitarian Analysis Programme. It also produces its own analysis by collecting secondary data on a regular basis and producing reports and can provide tailored support and products for organisations in the sector.

INFORM is a multi-stakeholder forum for developing shared, quantitative analysis relevant to humanitarian crises and disasters. INFORM includes organisations from across the multilateral system, including the humanitarian and development sector, donors, and technical partners. INFORM attempts to bridge the gap between data and decision-making. It has developed various Risk Indexes to aggregate data from key indicators to ensure the allocation of resources is risk-informed and is developing a suite of products to support this. While a quantitative approach, INFORM shares similarities to DEEP in terms of its overarching aims to facilitate information sharing in the humanitarian sector. INFORM governance shares many of the same organisations and individuals from IFRC, OCHA, ACAPS and UNHCR and others.

Humanitarian needs overview (**HNO**) are produced to develop a shared understanding of the impact and evolution of a crisis and to inform response planning. DEEP has been used to analyses qualitative for the purposes of producing HNOs.

The IFRC is the world's largest humanitarian network, comprising 192 National Red Cross and Red Crescent Societies working to save lives, build community resilience, strengthen localization and promote dignity around the world. Aligned with the inter-agency practice, the IFRC established its own Analytical Framework in 2018 and has been one of the largest users of DEEP in major emergency operations, as well as contributors to DEEP project management, steering and technical committees. In addition to Secondary Data Review, the IFRC has used DEEP to help structure operational learning against a preparedness framework, community vulnerability data, ongoing vulnerability and economic analyses and for scenario development. Many national societies are early adopters of the platform, including notably the German Red Cross who use DEEP for longitudinal urban analyses and are investing in dedicated DEEP personnel.

There are also other online **learning platforms** that aim to build capacity in the sector. For example, Disaster Ready has a library of over 1500 resources and claims to serve a community of over 400,000 humanitarian and development workers. They publish resources in Arabic, English, Spanish and French, and have recently offered training in Polish, Ukrainian and Russian to assist with the crisis in Ukraine. Similarly, the Humanitarian Leadership Academy provides learning resources and helps to build partnerships and collaborations. This is partly facilitated through Kaya, an online platform used to support organisations in developing and rolling out training.

[19] ACAPS 2021 https://www.acaps.org/who-we-are/in-short

Appendix V:

Other Data Tools used in the Humanitarian Sector

KoBo Toolbox

Key purpose	Cloud based data collection management tool for the humanitarian sector. It provides users with the ability to build forms, collect data and analyse and manage the data through summary reports and visuals. Kobo Toolbox is provided by non-profit Kobo, registered in Cambridge, MA. It was developed in 2005 by faculty in the Harvard School of Public Health. Works in partnership with UNHCR, the UNOCHA and Harvard Humanitarian Initiative (HHI).
Access and cost	Option of free services for unlimited use for humanitarian organisations courtesy of UN OCHA.
Key features of note	• Automated transcription and translation (rely on external providers). • Option to export data as reports, in Excel, CSV, KML, ZIP and SPSS. • Data can be exported as graphs and tables or heatmaps, cluster diagrams etc.
Open data	Software is free and open source.

ReliefWeb

Key purpose	ReliefWeb is a humanitarian information service and is more of an online host platform rather than a service through which users can download data. It also hosts job listings and training programmes. It is provided by the OCHA launched in 1996. The service is managed by the Digital Services Section of OCHA's Information Management Branch. The sharing of data on ReliefWeb is encouraged by United Nations resolutions. Editors at ReliefWeb classify, curate, and deliver the content most relevant to global humanitarian workers and decision makers on a 24/7 basis, enabling them to make informed decisions and plan effective response.
Access and cost	ReliefWeb requires user log-in via HID only. It is otherwise free to use.
Key features of note	• Visual representations of the location of disasters by geography. • Training courses on topics such as proposal writing, decolonizing research, and project management. • Ability to search for infographics, reports, and maps by country, organization, disaster, theme, and publication date.
Open data	Allows the reuse and reproduction of OHCA/ ReliefWeb maps and infographics subject to reference. Maps and infographics cannot be used for advertising, marketing, or in ways inconsistent with the mission of the organisation.

Appendix V

HDX – Humanitarian Data Exchange

Key purpose	The Humanitarian Data Exchange (HDX) is an open data platform managed by the United Nations Office for the Coordination of Humanitarian Affairs (OCHA) through its Centre for Humanitarian Data (the Centre).
Access and cost	No requirement for any account to create a login with HDX. It is free to use.
Key features of note	• HDX supports all common data formats and offers built-in preview support for CSV, TXT, XLS, and JSON formats. • Map previews are possible from geographic data in zipped shapefile, KML and GeoJSON formats.
Open data	HDX is open source. There are three ways to share data on HDX: publicly, privately or via HDX Connect. HDX Connect: The metadata of a dataset is available, and the contributing organization can decide whether or not to grant access to the full dataset when requested by a registered user.

5Whats

Key purpose	The 5Whats data collection tool is designed to provide essential information on the activities being carried out, where this is occurring, for how long and the main beneficiaries of this action. This allows cluster coordinators and organisations to coordinate their activities effectively, meet their targets within time constraints and ensure that humanitarian needs are met. It also assists in reducing duplication and identifying gaps in provision.
Access and cost	Free to use, but only open to the humanitarian sector. Cluster members can register with 5Whats and submit their activities.
Key features of note	• A monthly 5W dashboard is developed to summarise the role of organisations. • Weekly sitreps are produced, this includes a unified matrix from cluster inputs.
Open data	Open source, once a login is created then the data is visible.

INFORM

Key purpose	INFORM is a multi-stakeholder forum for developing shared, quantitative analysis relevant to humanitarian crises and disasters. INFORM includes organisations from across the multilateral system, including the humanitarian and development sector, donors, and technical partners. The Joint Research Center of European Commission is the scientific lead for INFORM. The INFORM platform is split into INFORM Risk, INFORM Warning, INFORM Severity Index, and INFORM Climate Change. Developed by the European Commission, the site is run by the DRMKC – Disaster Risk Management Knowledge Centre and managed by the Joint Research Centre.
Access and cost	INFORM is free to use.

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Key features of note	• Data is immediately available to the user without login in the form of PDF reports.
Open data	INFORM is open, also for integration in other applications. INFORM has a recent version of API that allows access to INFORM data for programmers. Currently, a new json API is available for reading data.

The Humanitarian Dashboard

Key purpose	The humanitarian dashboard presents humanitarian needs and gaps vis-à-vis current response and is published monthly. It is one of the essential tools used to monitor and report progress on humanitarian activities. It is provided by the OCHA. The technical aspects have been developed and continued to be managed by OCHA as per their responsibilities outlined in the Inter-Agency Standing Committee's (IASC)
Access and cost	Humanitarian Dashboard provides Humanitarian ID login. It is otherwise free to use.
Key features of note	• Reports can be downloaded from a vast database in PDF format.
Open data	Content on the site is licensed under a Creative Commons Attribution 4.0 International License.

IFRC: GO

Key purpose	IFRC: GO is a Red Cross Red Crescent platform to connect information on emergency needs with the right response. GO provides common situational awareness for the IFRC through the combination of structured data (e.g. funding, surge HR, project data, IFRC geographic data, historical crisis and operational learning data), user generated content (e.g. national society field reports, preparedness assessments, dashboards, sitreps) and curated external sources (e.g. risk analyses, impact forecasts, alerts).
Access and cost	It is free to use. Sensitive information is available for members of the Red Cross Red Crescent Movement only.
Key features of note	• IFRC: GO structures and curates data for IFRC planning, response and preparedness decision-making. • Users can generate maps, develop and export reports, access data and embed/view snippets such as dashboards and story maps. • Visuals can be exported individually from reports as PNG files.
Open data	IFRC: GO offers open-source code and API documentation.

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PDC Disaster AWARE/Disaster Alert (Disaster Alert is the public version of Disaster Aware)

Key purpose	Disaster Aware and Alert are multi-hazard early warning, hazard monitoring and risk intelligence platform. It is free for nongovernmental and governmental organisations worldwide. PDC Global is the developer of Disaster aware. PDC is an applied research centre managed by the University of Hawaii that supports the most demanding governmental and nongovernmental organisations worldwide. The organisation responsible for Disaster Aware, Pacific Disaster Centre, was established following Hurricane Inkiki on the Hawaiian Islands in 1992.
Access and cost	Disaster Alert is accessible free of charge for the public. Another version of the platform, Disaster Aware Pro is available for free for nongovernmental and governmental organisations worldwide.
Key features of note	• In addition to offering advanced decision support technology, PDC is pioneering the scientific application of artificial intelligence for disaster risk reduction through its AI for Humanity™ program. • Reports and publications from PDC can be downloaded free of charge online, it is unclear to what extent this is a comprehensive list or the extent to which the underlying data of the mapping platform can be accessed.
Open data	The PDC privacy policy states information is provided as a public service by the Pacific Disaster Centre.

IDMC

Key purpose	The Internal Displacement Monitoring Centre (IDMC) is a definitive source of data for analysis of internal displacement. Work informs policy and operational decisions that improve the lives of the millions of people living in internal displacement, or at risk of becoming displaced in the future. It was established in 1998 as part of the Norwegian Refugee Council.
Access and cost	Data is free to access. There is no requirement to create a login.
Key features of note	• Reports are downloadable in PDF format. • Displacement Data tab is a portal through which published figures can be viewed from annual flagship reports and the Global Displacement Risk Model is a tool for exploring and visualising disaster-related displacement risk metrics such as how many people are likely to be displaced per country per year or over certain time periods.
Open data	Open source, data is publicly available.

Appendix V

GDACS – Global Disaster Alert and Coordination System

Key purpose	GDACS is a cooperation framework between the United Nations and the European Commission. It includes disaster managers and disaster information systems worldwide and aims at filling the information and coordination gaps in the first phase after major disasters. It was created in 2004 as a cooperation framework between the United Nations and the European Commission, in order to address significant gaps in information collection and analysis in the early phase of major sudden-onset disasters.
Access and cost	No requirement for any account to create a login with GDACS.
Key features of note	• Files are available in geojson, html, json, kml, link, xml, shp, txt and zip formats. • Images of disaster event maps can be downloaded from individual event files as png or jpg files.
Open data	Data maps are viewable online without requirement to login.

Word

Key purpose	A word processing software that allows writing, checking of spelling and grammar, use of templates and collaborative working.
Access and cost	Various packages are available for businesses to purchase.
Key features of note	• Allows collaborative working. • Spelling and grammar checking. • Templates, fonts, and icons. • Different languages available. • Dictation and transcription available.
Open data	Data is kept private.

Excel

Key purpose	Excel creates spreadsheets and allows the inputting of data. This can then be organised, analysed and calculations/visualisations can be produced.
Access and cost	Various packages are available for businesses to purchase.
Key features of note	• Allow collaborative working. • Templates are available. • Calculations can be run, and data visualisations and charts produced.
Open data	Data is kept private.

Appendix V

NVivo

Key purpose	NVivo is a software that produces insights and findings from qualitative and mixed methods data. It allows data to be imported from a range of sources, analysed (using advanced management, query, and visualisation tools), identification of themes and the production of more robust research results.
Access and cost	Requires purchase to use.
Key features of note	• Has tools that allow data queries and visualisations to be produced. • Transcription of interviews, audio and video files is possible. • NVivo collaboration cloud and service help to assist in collaborative working and secure data storage. • Reference management tools are available (Citavi).
Open data	Purchase is required and data is kept private.

Atlas.ti

Key purpose	Atlas.ti assists in drawing out qualitative insights from data through the use of automatic research tools powered by AI and machine learning algorithms. It can be used to analyse data from interviews, surveys, focus groups, user research and literature reviews.
Access and cost	Requires purchase to use.
Key features of note	• Uses AI and machine learning algorithms to analyse data. • Visualisations can be produced from data. • Auto coding, opinion mining and sentiment analysis are available. • Reference manager data can be imported. • Social network comments and Twitter data can be imported. • Analysis can occur in various languages. • Data can be transcribed.
Open data	Data is kept private in relation to individual accounts.

Appendix VI:

SWOT Tables

Technical/User Experience SWOT

Strengths	Weaknesses
Overall • The range of functions on DEEP are attractive and useful – project management, opening projects, uploading documents, analysis frameworks and their pillars, tagging, assigning documents, exporting data. • DEEP has made significant improvements in its overall usability according to long-term users. • There are few additional functions or features users feel are necessary for the platform. • For those with experience of similar platform, DEEP is fairly easy to use. • Most users report encountering few bugs. • Many users believe the platform is technically advanced and powerful. • Users believe DEEP is moving in the right direction in terms of experience.	**Overall** • Load time of various features across the platform. • General consensus that although DEEP is useful, it is not as user friendly. • Certain functions of DEEP are hard to use – exporting documents from a specific timeframe, dashboard visualisation, inconsistencies in tagging, quality assurance. • Easily replaced if something more user friendly is developed. • Issues with Unicode are extensive. This is particularly the case, but not only, in Spanish. • DEEP is less usable on mobile devices, although it is appreciated this was not an intended use.
Specific features • Those using NLP are happy with it and find it to be accurate. There is general enthusiasm for the NLP if it is done properly and enhances efficiency of DEEP. • NLP works well in Spanish and English. • Duplication detection works very well for some users • Project management functions work well. • The opportunity to create a framework in DEEP is useful for organisations that follows different frameworks or develop new ones for specific projects. • Those that have used the assessment and entry dashboard thought that the graphics produced were attractive. • The assessment registry is perceived as being exceptionally good. • Tagging, using connectors, and uploading sources are generally perceived as easy. • Exports are useful and easy to generate subsequent reports from. • Project management functions work very well.	**Specific features** • Few people have used the NLP function or understand what it will be used for. • Some are not aware of the quality assurance function. • Tagging takes considerable time. • Struggles with exporting documents that are based on a specific timeframe due to issues with the file size being too large. • Unclear explanations of what parameters refer to in the export function. • Sometimes inconsistencies in tagging. • The quality assurance feature is not obvious. • Some users are hesitant to use the assessment registry and scare off external partners.
Support • Active Skype group responsive at addressing issues and providing support. • DEEP-provided training sessions helpful. • 1-2-1 support provided for key projects has proved especially useful in engaging users and widening use cases.	**Support** • There are inadequate quality training and support material for DEEP users. • Taggers need technical knowledge.

Appendix VI

Technical/User Experience SWOT

Opportunities

- Automation of tagging.
- Development of technical guides, including those that are role-specific.
- Automated or semi-automated tagging.
- Further use of volunteers.
- Crowd-source tagging.
- Predictive analytics.
- Enhanced navigation panels – dashboard is an example of this.
- Enhanced options for categorisation.
- Increased visual elements of the platform.
- Present the number of tags across pillars in frameworks to show users where gaps are in their analyses.

Threats

- NLP function currently in DEEP is at risk of becoming outdated.
- Insufficient use to refine NLP function.
- Risks of sharing data on cloud services.
- Risks associated with reliance on small, highly interconnected technical partner.
- Very time consuming during initial stages of learning how to use DEEP especially with limited staffing resources and limiting DEEP training resources.

Conceptual SWOT

Strengths

Overall

- DEEP promotes transparency within and across the humanitarian sector, particularly through sharing data and the process of analysing data that would otherwise be internal.
- DEEP promotes collaboration within and across the humanitarian sector.
- Open access nature of DEEP facilitates knowledge transfer.
- DEEP has had a very distinct purpose within the HPC.
- Flexible and can adapt to different organisational and sub-sectoral needs.
- DEEP allows more informed decision-making.
- DEEP is perceived as a unique platform fulfilling an important need in qualitative data analysis.
- When users understand the platform, DEEP tends to save time.
- DEEP can minimise the duplication of efforts in the sector.
- DEEP supports analysis on local and national scales.
- DEEP is seen as particularly useful where there is a lot of data to analyse.
- Narrow the bridge between IM and other humanitarian workers, with potential implications for the skills gap in qualitative analysis for the sector.

Continues

Weaknesses

Overall

- DEEP is not used throughout the entire HPC.
- The value of DEEP depends on the users having conceptual knowledge conceptual and technical knowledge of the humanitarian sector and how to use frameworks.
- There is a lack of effective communication about DEEP and what it does to external partners and those not on DEEP Governance Board.
- Some users found that DEEP only supports collaboration within organizations and not across.
- In creating more analysis, DEEP creates more work. This can involve costs to hire taggers/ consultants that may not have existed without DEEP.
- Divergent visions of what DEEP should be exist in the Board.
- People expect more of DEEP than it can offer.
- DEEP adds more time needs to undertake qualitative analysis (even if it improves the quality).
- DEEP does not always facilitate collaboration.
- DEEP does not always contribute to the sharing of data in the sector.
- That analytical frameworks are customisable prevents global-level analysis.
- Not sufficient analytical capacity in the sector.

Continues

Appendix VI

Conceptual SWOT

Strengths	Weaknesses
Overall • Quality control function serves as form of peer review. • Quality control function serves as project and people management tool. • DEEP is targeted to and meets the needs of the humanitarian sector, even when compared to other tools. • DEEP provides a workspace and community. • DEEP reduces burden for primary data collection by allowing secondary data to be better analysed.	**Overall** • DEEP is not the end point of analysis and leads to the need for another stage off DEEP. • DEEP does not easily facilitate the recording of quantitative data.
Facilitating better qualitative data analysis • DEEP supports the recent increased capacity for IM in the humanitarian sector. • Users found it to be a great tool for bespoke projects with specific analytical frameworks. • Several organisations have embedded DEEP into their regular processes. • Data and monitoring platforms are attractive to donors. • Many users believe the analysis is better than if completed via Excel or similar. • DEEP supports better processes of analysis and can initiate organisational change to analysis processes. • DEEP can bring attention to data gaps. • DEEP facilitates more accurate analysis.	**Facilitating qualitative data analysis** • Users need to know what they want to get out of analysis before starting analysis on DEEP. • Aims of DEEP are limited – it is not the "end all be all" of strengthening secondary data analysis in the humanitarian sector. • Many users reported that DEEP is only as good as the analytical framework chosen for specific projects – there are further issues with using frameworks as different frameworks have varying pillars and definitions for tagging. • DEEP effectively creates more data. • DEEP is unable to facilitate inductive analysis.
Improving outputs and outcomes • DEEP supports the reporting of data in narrative form. • DEEP is effective in producing reports for situational analyses, needs assessments, regional protection analysis – combining information from other projects into a more comprehensive snapshot of regional overviews. • Creates repository of qualitative data. • DEEP improves accountability as there is an evidence trail from sources to the final report. • Creates a historical record of structured data.	**Outputs and outcomes** • Additional work needs to be done once data is exported to make it usable.

Appendix VI

Conceptual SWOT

Opportunities	Threats
Overall • General consensus that there is a need for an increased qualitative data analysis in the humanitarian sector. • Provide strong, clear messaging on the purposes and functions of DEEP to ensure that the expectations of the users are not misaligned – users currently expect it to do everything but there is still a human element to secondary data review that should not be replaced. • The DEEP Governance Board should use DEEP to address mistrust with data platforms. • Promoting mixed methods in the humanitarian sector by integrating short-list of quantitative indicator to be stored in DEEP within specific projects. • Consider how secondary data analysis of humanitarian data could be used for broader reasons – managing risks, scenarios, lessons learned, peer reviews.	**Overall** • The humanitarian sector is far behind the aims and visions for using DEEP – infrastructure and technology within organisations. • Politics and bureaucratic processes in UN Agencies and large international NGOs limit data-sharing within and across organizations. • The members of the DEEP Governance Board and those that use the platform represent the "usual suspects" in high-level humanitarian sector – UN Agencies and large international NGOs – this is unrepresentative of the wider humanitarian sector. • There is potential that data protection and the sensitive nature of protection data prevents the sector from data-sharing although there is scope to do more. • Some donors have funding fatigue of new data tools. • There are issues with collaboration and data-sharing that extend beyond the use of DEEP in the humanitarian sector.
Facilitating better qualitative data analysis • Promote DEEP as a process rather than a tool to create a culture of peer review in the humanitarian sector. • The DEEP Governance Board could engage in debates concerning big data and other data challenges in the humanitarian sector. • Create Standing Operation Procedures (SOPs) for using DEEP for either short or long-term response – identifying where reporting streams are and how SDR can be integrated. • Use DEEP to standardise the process of using analytical frameworks. • More than one analyst per projects – project structures. • Create processes that ensure the use of DEEP feeds into coordination and decision-making.	**Facilitating qualitative data analysis** • That DEEP facilitates more analysis means it may be difficult to know what to prioritise. • Individuals in the humanitarian sector reported that they typically access certain datasets on organisation websites and have preconceptions about which datasets they want to use. • Some users are less keen to use DEEP for projects without specific frameworks. • There is a lot of data in the humanitarian sector – some say too much data of poor quality rather than less date of higher-quality. • Lack of trained analysis experts in the sector to fully use the capacities of DEEP.

Appendix VI

User Engagement SWOT

Strengths

- DEEP attendance at key events increased users.
- DEEP is open access.
- DEEP is free with no limits on number of users or cloud space.
- DEEP is developed and managed by a core group of experts that promote the platform within their wider networks.
- There is an active support network run by various members of the DEEP Governance Board.
- Becoming indispensable in some organisations.
- COVID projects seem to have led to some organic growth of users.
- DEEP champions in country networks are useful to grow engagement.
- Users who are able to use DEEP are very likely to return to the platform for subsequent projects.
- Human interaction with DEEP Board seems to lead to use.
- Users who are able to use DEEP are very likely to promote it amongst their networks and offer training to potential users.
- Increasingly people are 'hearing about' DEEP.
- UN-affiliated organisations being users gives confidence to smaller organisations.
- DEEP is flexible and can be adapted to suit user needs.

Weaknesses

- Usual suspects as main users, few smaller organisations.
- Issues accessing skype/slack groups.
- Technical support is underused.
- The initial learning curve can dissuade use. Particularly without training or guides.
- Very few people know about DEEP, people may have heard about it but not used it.
- Non-users and users' express confusion with how the platform is explained.
- Lack of promotion in key spaces.
- Potential users often wait extended time for support, particularly if not facilitated directly through DEEP.
- Need technical and conceptual knowledge to use DEEP creating a large training burden and excluding non-specialists.
- Reliance on Diehard Influencers means use of DEEP can end when someone moves roles or leaves an organisation.
- DEEP seems to have been misrepresented in certain places, particularly in early promotion.
- Some perceive as adding time to projects.
- Requires internet connectivity and computer access.
- Privacy controls not widely understood
- DEEP is used incorrectly and users do not see the value.
- Technical issues cause users to abandon platform.

Appendix VI

User Engagement SWOT

Opportunities	Threats
• Target humanitarian organisations that provide training in information management. • The DEEP Governance Board should promote the use of DEEP to smaller organisations and those that are not members of the DEEP Governance Board. • Create role-specific technical guidelines to engage the different user groups identified. • Produce updated use cases to convey how DEEP can better organisationally processes. • Produce a handbook of analytical frameworks that are commonly used on DEEP. • Hold webinars to promote DEEP. • Create a foundational course for using the platform. • Consider packaging DEEP with human resources, commissioning projects using DEEP that are supported by experienced analysts. • Promote DEEP as a repository / database for qualitative data. • Invest in reporting so that people can recognise DEEP reports anywhere and recognise them as a sign of quality. • Promote use for individual and small research projects. • OCHA endorsement.	• Not widely known about. • If DEEP were to not be a free tool it would most likely lose users. • Users found technical support functions of DEEP to be unhelpful which could create a lack of desire to further engage with the platform. • DEEP does not engage with smaller organizations. • Data literacy poses a threat to engaging with users. • Miscommunications or overselling of DEEP has led to unrealistic expectations of the platform. • The DEEP platform is not widely known about outside of the networks of the DEEP Governance Board. • There is often a lack of time for training and capacity-building required to get organisations on DEEP in the face of crises and disaster. • Organisations cannot manage their space on DEEP and are at risk of reputational damage. • Lack of clarity on data privacy concerns some organisations. • Challenging. • Fears about future sustainability. • Key actors such as REACH and ACAPS are not engaged.

The Catalyst
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