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ATHENA INFONOMICS

Opportunities for Supporting Humanitarians

Technology Guidance

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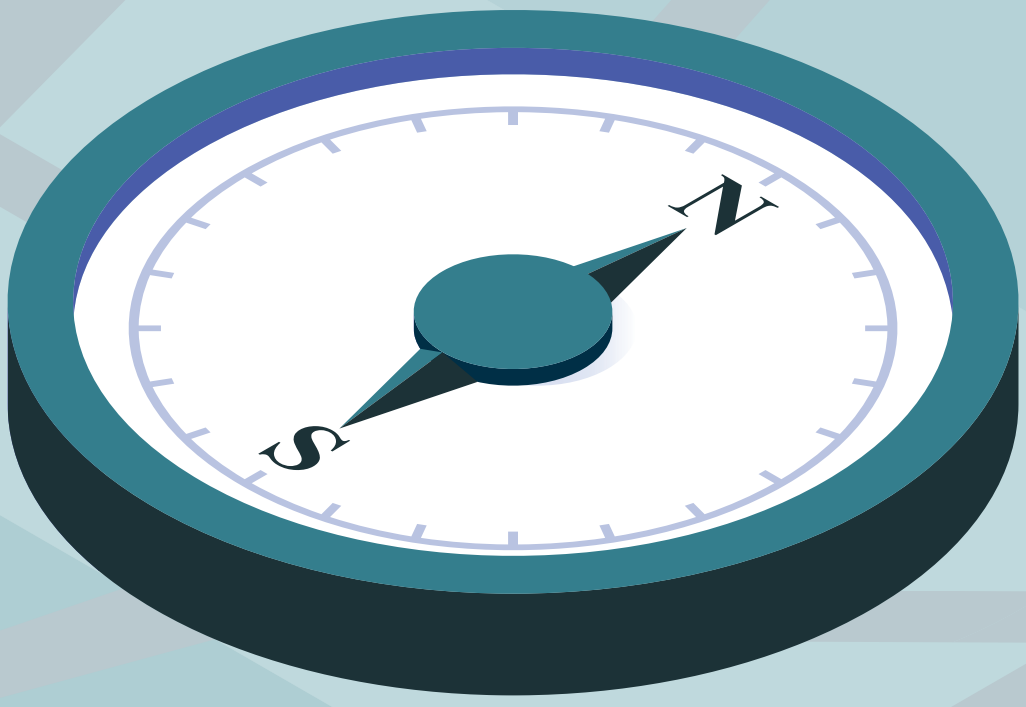

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Summary

Between November 2023 and April 2024, RAND Europe, in partnership with Athena Infonomics and glass.ai, explored current and future uses of emerging technologies in the humanitarian sector.

As part of a project commissioned by the UK Humanitarian Innovation Hub (UKHIH), the study team explored the need to develop guidance for humanitarian stakeholders when deploying emerging technologies in crises-affected contexts. This document offers practical recommendations for humanitarian practitioners and organisations for developing and implementing emerging technology programmes while upholding humanitarian principles, involving local and crises-affected communities, and considering potential risks and limitations.

Figure S.1 summarises a proposed step-by-step approach to be undertaken by humanitarian actors to accompany the implementation and use of emerging technologies in their activities and programmes. This phased approach offers humanitarian organisations looking to adopt and use emerging technologies practical guidelines for doing so.

The list of questions posed under each step should be tailored to the local context in which a given technology is implemented and will depend on the scope of the proposed project or programme. Although the process is focused on programme- and project-specific decisions, it recognises wider developments (within individual humanitarian organisations or across the sector) that may impact the selection of technologies or their application to address specific challenges or issues.

Figure S.1 Responsible technology guidance step-by-step approach

Step 0. Technology need identification (pre-requisite)

- What is the challenge or issue that the humanitarian sector needs to address?
- Can the identified humanitarian challenge or gap identified be addressed through non-technological means (e.g. change of processes, organisation and division of labour, roles and responsibilities, etc.)?

Step 1. Technology selection

Design decisions

- What type of project or programme will be implemented?
- What type of technology can be considered to address the identified challenge or gap? (e.g., is it a new technology that has not yet been used in the humanitarian sector)
  - » Have previous projects sought to address similar challenges through the use of technology, including in the development or conflict prevention/ peacebuilding sectors? If so, were these projects successful?
- How will technology be used in support of programme objectives? (e.g. scaling up existing or previous technology programme)
  - » Who will be the end users or stakeholder groups engaging with these technology (e.g. hard to reach populations, minors, etc.)

Potential constraints

- At what scale will the project be implemented?
- What are the potential risks associated with the selection of technology for the proposed programme?
- What are the regulatory or legal frameworks that will apply when using a specific technology (e.g., GDPR)?

Step 2. Scoping technology application

Design decisions

- What is the level of familiarity with the selected technology within the organisation or grouping of organisations?
  - » Is there a need to develop accompanying guidance to the technology roll-out? For which target audience?
- Are there any lessons learnt and/or good practices from previous projects that can be leveraged?
- What type of stakeholders engagement should be conducted to scope the use of the selected technology in support of programme objectives (e.g., tech developers, researchers, humanitarians, affected communities)?

Potential constraints

- What are the potential implications of the selected technology with regards to data collection, data privacy and data security?
- Are there any risk specific envisaged in the context of the proposed programme and selected technology?
  - » What potential mitigation strategies could be embedded in the design of the programme?

Step 3. Guidance development (if yes to Step 2 decision questions)

Design decisions

- What type of guidance would be most useful in the context of the project or programme and target audience envisaged (i.e., content, language, length)?
  - » How should guidance be developed (e.g., by individual organisations or experts versus in a joint manner with a variety of actors)?
- How will the guidance reach the identified target audience? (i.e., format, dissemination process, availability and accessibility?)
  - » What communications strategy can be developed to support the development of relevant guidance, both for humanitarian organisations as well as end-users and beneficiaries of the technology, including affected communities?

Potential constraints

- Is the technology specific vocabulary translatable across contexts relevant or in scope for the project or programme?
  - » Are there barriers associated with specific formats (e.g., paper versus electronic)?

Step 4. Technology and guidance deployment

Design decisions

- Is the technology supporting progress towards project/programme aims?
  - » Are there any negative impact or unintended consequences observed?
- Is the guidance reaching target audience (both humanitarians and affected communities)?
  - » Is the guidance useful and fit for purpose?
  - » Are there any changes required to the guidance?
- How often should the guidance be reviewed? By whom?
  - » What monitoring tools are available and implemented to ensure the guidance is tailored?
  - » What role should comms experts have in this monitoring process?

Potential constraints

- What are the main limitations to the use of the guidance?
  - » What additional steps or activities could be conducted to support its use?
- Are there any challenges associated with comms activities around the guidance?

Cross-cutting considerations for humanitarians across all steps

- Does the project or programme include considerations of the local context and communities and leverage local knowledge?
- Does the project or programme include continuous engagement with end-users and affected communities?
- Does the project or programme include specific communication mechanisms both internally and externally-facing?
- What are the trade-offs considerations between humanitarian values and principles, constraints and guidance decisions in the context of the project or programme?

Source: Study team analysis.

Preface

This report was produced as part of a project commissioned by the UK Humanitarian Innovation Hub (UKHIH) that explored the adoption and use of emerging technologies in the humanitarian sector and associated barriers and challenges. This document presents a four-step approach designed to support humanitarian actors in their adoption and use of emerging technologies.

The underpinning research activities across the three phases of the project were conducted between November 2023 and April 2024. This project explored specific technology areas with strong potential within the humanitarian sector and investigated opportunities for foresight initiatives embedding emerging technologies.

This report should be read in conjunction with the other outputs of this study: the *Deep Dive series*[1] and *Technology Foresight initiative*[2] documents. In addition, the study team developed two case studies on technology-enabled Cash and Voucher Assistance (CVA) and biometrics.[3]

The study was conducted by RAND Europe in partnership with Athena Infonomics and glass.ai. For more information about this study or RAND Europe, please contact:

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2 Paillé, Pauline, James Besse, Hampton Toole, Chryssa Politi, Shruti Viswanathan, Eunice Namirembe, Jyoti Nayak & Jacob Ohrvik-Stott. 2024*. Opportunities for supporting humanitarians: Technology Foresight Concepts*. Santa Monica, Calif.: RAND Corporation. RR-A3192-4. As of 17 October 2024: www.rand.org/t/RRA3192-4

3 Toole, Hampton, Pauline Paillé, Chryssa Politi & Jacob Ohrvik-Stott. 2024. *Humanitarian Technology Adoption Case Study: Technology-enabled Cash and Voucher Assistance.* Santa Monica, Calif.: RAND Corporation. RR-A3192-5. As of 17 October 2024: www.rand.org/t/RRA3192-5;
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Table of contents

Summary i

Preface iii

Abbreviations v

Chapter 1. Introduction 1
1.1. Study scope and context 1
1.2. Guidance presentation and objective 2

Chapter 2. Responsible technology adoption guidance 3
2.1. Overview of proposed step-by-step guidance 3
2.2. Step 1. Preparation activities and technology selection 5
2.3. Step 2. Defining requirements for technology application 12
2.4. Step 3. Deploying technology and developing guidance 14
2.5. Step 4. Monitoring and assessing technology and guidance deployment 16
2.6. Cross-cutting themes and considerations 17

Tables

Table 2.1 Preparing for guidance development: Practical steps for stakeholders 6

Figures

Figure S.1 Responsible technology guidance step-by-step approach ii

Figure 2.1 Responsible technology guidance step-by-step approach 4

Boxes

Box 2.1	Summary of preparation stage activities, considerations and next steps	5
Box 2.2	Case study: Mobile applications for migrant communities	9
Box 2.3	Summary of technology selection activities, considerations and next steps	10
Box 2.4	Case study: Co-design of data management systems with local communities	11
Box 2.5	Summary of activities, considerations and next steps during requirement-defining	12
Box 2.6	Case study: 'Red teaming' to ensure data protection and social inclusivity of emerging technologies	13
Box 2.7	Summary of technology guidance development activities, considerations and next steps	14
Box 2.8	Summary of technology deployment activities, considerations and next steps	16
Box 2.9	Case study: Cash distribution programmes and the local context	20
Box 2.10	Case study: Smart translation and communications	21
Box 2.11	Case study: Embedding data protection in humanitarian practice – examples and opportunities	23

Abbreviations

GDPR	General Data Protection Regulation
IASC	Inter-Agency Standing Committee
ICRC	International Committee of the Red Cross
LMIC	Low- and Middle-Income Country
M&E	Monitoring and Evaluation
OCHA	Office for the Coordination of Humanitarian Affairs
UKHIH	UK Humanitarian Innovation Hub
UN	United Nations
UNICC	United Nations International Computing Centre
WFP	World Food Programme

Chapter 1. **Introduction**

1.1. Study scope and context

In November 2023, RAND Europe, in partnership with Athena Infonomics and glass.ai, launched the *Emerging Technologies for the Humanitarian Sector* project. This initiative, funded by the UK Humanitarian Innovation Hub (UKHIH), is the first stage of the Hub's wider programme of work exploring opportunities to support humanitarian-sector organisations to effectively consider how, or whether, to adopt technologies in their work.

The United Nations (UN) Organisation for the Coordination of Humanitarian Affairs' (OCHA) *Strategic Plan 2023–2026* notes that the humanitarian sector is facing an exponential rise in humanitarian needs while simultaneously 'buckling under its resource constraints'.[4] Technologies offer a vital means of bridging this growing needs–resources gap,[5] but OCHA cautions that these systems should be people-centred, durable and promote concrete outcomes.

Acknowledging this context, this project included three overarching aims:

1. Understand and define trends in the adoption and use of emerging technologies within the humanitarian sector.
2. Identify key emerging technologies that could strengthen humanitarian practice through an online survey.
3. Envisage a future research and innovation journey for the identified key emerging technologies.

To fulfil these objectives, the study team adopted a mixed-methods approach that included a literature review, semi-structured interviews, surveys and questionnaires, workshops, horizon scanning and web reading. These activities are presented in detail in the *Methodology report*.[6]

This document was developed during the third and final phase of the study, between March and April 2024, and supplements the *Deep Dive series*[7] and the *Technology Foresight*

4 Office for the Coordination of Humanitarian Affairs. 2023. *OCHA's Strategic Plan 2023-2026: Transforming Humanitarian Coordination*. As of 6 August 2024: https://www.unocha.org/publications/report/world/ochas-strategic-plan-2023-2026-transforming-humanitarian-coordination

5 The UK Foreign, Commonwealth & Development Office (FCDO)'s also encourages to 'put science, technology and data at the heart of our actions' as a 'key pillar' of the Humanitarian Framework. See Foreign Commonwealth and Development Office. 2022. 'Policy paper: UK humanitarian framework.' FCDO Humanitarian and Migration Directorate. As of 6 August 2024: https://www.gov.uk/government/publications/uk-humanitarian-framework/uk-humanitarian-framework

6 Paillé, Pauline, James Besse, Hampton Toole, Chryssa Politi, Shruti Viswanathan, Eunice Namirembe, Jyoti Nayak, Sergi Martorell, Iain McLaren, Christopher Tyson, Charlie Wilkening & Jacob Ohrvik-Stott. 2024. *Emerging technologies in the humanitarian sector: Methodology report*. Santa Monica, Calif.: RAND Corporation. RR-A3192-2. As of 17 October 2024: www.rand.org/t/RRA3192-2

7 Paillé, Pauline, James Besse, Hampton Toole, Chryssa Politi, Shruti Viswanathan, Eunice Namirembe, Jyoti Nayak, Sergi Martorell, Iain McLaren, Christopher Tyson, Charlie Wilkening & Jacob Ohrvik-Stott. 2024. *Emerging technologies in the humanitarian sector: Technology Deep Dive Series*. Santa Monica, Calif.: RAND Corporation. RR-A3192-1. As of 17 October 2024: www.rand.org/t/RRA3192-1

initiative[8] documents. This document draws upon two workshops with a range of global humanitarian service organisations, a survey of humanitarian stakeholders, targeted desk research, and two interviews with humanitarian guidance users conducted using a semi-structured interview approach.

1.2. Guidance presentation and objective

In the final phase of the project, the study team mapped the use of technology within the sector, examined guidance and consulted with relevant sectoral stakeholders (i.e. humanitarian actors conducting foresight and humanitarian practitioners that have developed and/or used guidance products previously) to better understand the need for guidance and existing gaps in this space. Through these activities, the team identified many cases where technology is used to address humanitarian issues, but identified little usable, practical guidance available to practitioners to support technology adoption and use.

This demonstrated a need for actionable guidance on the adoption and use of humanitarian emerging technologies. Existing guidance was non-specific and often focused on broad humanitarian principles rather than practical advice for intended users. The absence of actionable steps to be taken by humanitarian stakeholders reduced the usability of these tools and hampered the further adoption of emerging technologies in the sector. Nevertheless, the study team identified useful guidance to build on, such as the Principles for Digital Development, a set of guidelines created by donors and humanitarian organisations to ensure that inclusivity, ownership and diversity are considered when developing projects,[9] and the Elrha Humanitarian Innovation Guide, which provides organisations with a six-stage innovation pathway, including supporting activities and exercises.[10]

To address this gap, the study team developed a comprehensive four-step process to help humanitarian practitioners navigate decision making for emerging technology programmes. This step-by-step approach aims to ensure that choices relating to a specific technology and its application in crises-affected contexts are fit for purpose both for humanitarian organisations as well as for end-users of these technologies. The proposed approach is designed for all stakeholders, including those with limited experience or expertise of emerging technologies. This document also presents opportunities, risks and challenges associated with emerging technologies across different humanitarian contexts, informing the development of usable guidance for the sector.

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8 Paillé, Pauline, James Besse, Hampton Toole, Chryssa Politi, Shruti Viswanathan, Eunice Namirembe, Jyoti Nayak & Jacob Ohrvik-Stott. 2024. *Opportunities for supporting humanitarians: Technology Foresight Concepts*. Santa Monica, Calif.: RAND Corporation. RR-A3192-4. As of 17 October 2024: www.rand.org/t/RRA3192-4

9 The nine principles are: understand the existing ecosystem; share, reuse and improve; design with people; design for inclusion; build for sustainability; establish people-first data practices; create open and transparent practices; anticipate and mitigate harms; and use evidence to improve outcomes. See Principles for Digital Development. n.d. 'Home.' As of 19 August 2024: https://digitalprinciples.org/

10 The six stages presented in the Humanitarian Innovation Guide are: 1. Recognition; 2. Search; 3. Adaptation; 4. Invention; 5. Pilot; and 6. Scale. See Humanitarian Innovation Fund (HIF) & Elrha. n.d. 'The Innovation Process.' As of 19 August 2024: https://higuide.elrha.org/

Chapter 2. Responsible technology adoption guidance

2.1. Overview of proposed step-by-step guidance

The guidance developed by the research team encompasses four steps for humanitarians to consider when looking to deploy emerging technologies as part of their projects or programmes. These steps are presented in Figure 2.1 below.

In addition to the four key steps specific to the development of technology-enabled programmes, the process assumes a prerequisite step – Step 0: Technology need identification. Even before starting to develop guidance for specific technologies to support humanitarian activities, practitioners and organisations across the sector should first aim to understand and prioritise pressing existing humanitarian issues. As a result of these preliminary activities, humanitarians should determine whether emerging technologies can or should be applied in the development of humanitarian programmes or projects. Such assessments should be based on the social and technical appropriateness and practical feasibility of emerging technologies in a given context, and assess how technology may fit into existing or foreseen humanitarian activities. In this stage, it is important to note that emerging technologies may not be the most suitable response to a particular humanitarian issue or set of issues, and users should apply both technology-sceptic and technology-optimistic approaches to their activities (see Step 0 in Figure 2.1).

This document assumes that emerging technologies will help address existing gaps and/or challenges in the humanitarian sector and begins at Step 1 (see Section 2.2).

Figure 2.1 Responsible technology guidance step-by-step approach

Step 0. Technology need identification (pre-requisite)

- What is the challenge or issue that the humanitarian sector needs to address?
- Can the identified humanitarian challenge or gap identified be addressed through non-technological means (e.g. change of processes, organisation and division of labour, roles and responsibilities, etc.)?

Step 1. Technology selection

Design decisions

- What type of project or programme will be implemented?
- What type of technology can be considered to address the identified challenge or gap? (e.g., is it a new technology that has not yet been used in the humanitarian sector)
  - » Have previous projects sought to address similar challenges through the use of technology, including in the development or conflict prevention/peacebuilding sectors? If so, were these projects successful?
- How will technology be used in support of programme objectives? (e.g. scaling up existing or previous technology programme)
  - » Who will be the end users or stakeholder groups engaging with these technology (e.g. hard to reach populations, minors, etc.)

Potential constraints

- At what scale will the project be implemented?
- What are the potential risks associated with the selection of technology for the proposed programme?
- What are the regulatory or legal frameworks that will apply when using a specific technology (e.g., GDPR)?

Step 2. Scoping technology application

Design decisions

- What is the level of familiarity with the selected technology within the organisation or grouping of organisations?
  - » Is there a need to develop accompanying guidance to the technology roll-out? For which target audience?
- Are there any lessons learnt and/or good practices from previous projects that can be leveraged?
- What type of stakeholders engagement should be conducted to scope the use of the selected technology in support of programme objectives (e.g., tech developers, researchers, humanitarians, affected communities)?

Potential constraints

- What are the potential implications of the selected technology with regards to data collection, data privacy and data security?
- Are there any risk specific envisaged in the context of the proposed programme and selected technology?
  - » What potential mitigation strategies could be embedded in the design of the programme?

Step 3. Guidance development (if yes to Step 2 decision questions)

Design decisions

- What type of guidance would be most useful in the context of the project or programme and target audience envisaged (i.e., content, language, length)?
  - » How should guidance be developed (e.g., by individual organisations or experts versus in a joint manner with a variety of actors)?
- How will the guidance reach the identified target audience? (i.e., format, dissemination process, availability and accessibility?)
  - » What communications strategy can be developed to support the development of relevant guidance, both for humanitarian organisations as well as end-users and beneficiaries of the technology, including affected communities?

Potential constraints

- Is the technology specific vocabulary translatable across contexts relevant or in scope for the project or programme?
  - » Are there barriers associated with specific formats (e.g., paper versus electronic)?

Step 4. Technology and guidance deployment

Design decisions

- Is the technology supporting progress towards project/programme aims?
  - » Are there any negative impact or unintended consequences observed?
- Is the guidance reaching target audience (both humanitarians and affected communities)?
  - » Is the guidance useful and fit for purpose?
  - » Are there any changes required to the guidance?
- How often should the guidance be reviewed? By whom?
  - » What monitoring tools are available and implemented to ensure the guidance is tailored?
  - » What role should comms experts have in this monitoring process?

Potential constraints

- What are the main limitations to the use of the guidance?
  - » What additional steps or activities could be conducted to support its use?
- Are there any challenges associated with comms activities around the guidance?

Cross-cutting considerations for humanitarians across all steps

- Does the project or programme include considerations of the local context and communities and leverage local knowledge?
- Does the project or programme include continuous engagement with end-users and affected communities?
- Does the project or programme include specific communication mechanisms both internally and externally-facing?
- What are the trade-offs considerations between humanitarian values and principles, constraints and guidance decisions in the context of the project or programme?

Source: Study team analysis.

2.2. Step 1. Preparation activities and technology selection

2.2.1. Preparation stage

Box 2.1 Summary of preparation stage activities, considerations and next steps[11]

Objectives: Determining:

1. What are the most pressing issues in a given humanitarian context and whether there are gaps in humanitarian provision in relation to this issue;
2. Whether emerging technologies may be suitable to these context(s) and issue(s);
3. How these technologies could support humanitarian activities in response.

Activities: Include stakeholder engagement to identify existing issues and gaps (Phases 1.A and 1.B), landscape assessment to understand the broad suitability of any technology to a particular humanitarian setting, and primary and secondary research of specific technology applications, including technical assessment (Phase 2) (see Table 2.1 below).

Constraints/considerations: Pre-existing stakeholder bias; accessibility to relevant stakeholder groups; limited evidence on technologies; limited understanding of technology adequacy; potential conditions or constraints for donors; alignment between technology assessment and real-world conditions; wider technology development relating to changes in standards, regulatory frameworks, or internal policies within humanitarian organisations towards the adoption and use of emerging technologies.

Output/next steps: Determine specifics of project/programme, including whether emerging technologies could and should be used.

The preparation stage involves two sets of activities: gap identification (Phases 1A and 1B) and technology issue exploration (Phase 2). These activities are explained below and in Table 2.1.

11 For more details see Stage 1 and 2 in: Elrha. N.d. 'Humanitarian Innovation Guide.' As of 19 August 2024: https://higuide.elrha.org/

Table 2.1 Preparing for guidance development: Practical steps for stakeholders

Phases in preparation	Key questions for consideration	Supporting activities (to develop answers)[12]	Potential constraints and specific mitigations
Phase 1A: Gap identification (not specific to emerging technologies)	What are the most pressing humanitarian issues in a given sector or context? Who do these issues primarily impact and involve? What are the existing gaps in humanitarian practice? How do these gaps impact humanitarians and crises-affected communities in different ways?	Stakeholder engagement with diverse actors in the space, including humanitarian actors (including headquarters-level and country-and/or region-specific humanitarian practitioners), potential target communities and technology developers.	Constraint: Bias in stakeholder perspectives. Mitigation: Draw on diverse stakeholder perspectives to mitigate potential biases.
			Constraint: Inaccessibility of key stakeholders. Mitigation: Utilising creative methods for engagement in communities, including drawing on the experiences of trusted practitioners and utilising virtual engagement where appropriate.
			Constraint: Limited proof of concept for technologies. Mitigation: Develop specific standards for technology maturity and performance assessment.
			Constraint: Donor conditionalities on issue area or technology use. Mitigation: Establish and maintain channels for feedback to donors on gap identification results.
Phase 1B: Consolidating gap identification findings	Are there any specific emerging technologies suitable to address the gap identified, for example, to a given sector and/or context?	Critically appraise the need for and appropriateness of emerging technologies to address a specific gap. Determine the feasibility and acceptability of low-tech solutions to achieve goals.	Constraint: Limited familiarity with emerging technologies and suitability in relation to the humanitarian sector. Mitigation: Review of previous project looking to address similar gaps to understand whether emerging technologies have already been used; early engagement with technology developers or academic experts to increase humanitarian understanding of technology suitability.
			Constraint: Difficulty in assessing the utility of unused or unproven technologies in a specific setting. Mitigation: Draw on stakeholder views and findings from comparable studies and implementation examples if available.
			Constraint: Reaching stakeholders to determine feasibility and appropriateness. Mitigation: Utilising creative methods for engagement in communities, including drawing on the experiences of trusted practitioners and utilising virtual engagement where appropriate.

12 The proposed activities could be implemented by humanitarian organisations themselves or in partnership with research organisations or academia given existing significant constraints within the sector (e.g. time, resources, experience, availability).

Phases in preparation	Key questions for consideration	Supporting activities (to develop answers)[12]	Potential constraints and specific mitigations
Phase 2: Technology issue exploration	How can emerging technologies support humanitarian activities? What can technology enable the humanitarian sector to do?	Conduct desk research on existing or intended use cases for emerging technologies. Conduct ongoing stakeholder engagement to refine understanding of emerging technology use and application, including in the specific context the project could be developed. Connect stakeholders from different parts of the humanitarian and technological landscape. Develop standardised technical assessment of emerging technology within humanitarian organisations . Explore alternative technologies.	Constraint: Difficulty in understanding limitations of technologies due to low evidence or reporting. Mitigation: Assess technology according to pre-determined maturity and performance criteria. Constraint: Difficulty in accessing relevant stakeholders. Mitigation: Utilise networks of stakeholders to access individuals or groups with relevant expertise. Constraint: Aligning technical assessment with real-world implementation conditions. Mitigation: Utilise networks of stakeholders to access individuals or groups with relevant expertise.

Source: RAND Europe and Athena Infonomics analysis.

Preparation Phases 1A and 1B: Gap identification and consolidating findings

The purpose of the gap identification stage is to identify and prioritise issues relating to existing humanitarian practice and activities that could be further enhanced or addressed using emerging technologies in a given setting or specific communities (see Table 2.1, Phase 1A).[13] These issues may be of varying interest and importance to technical and strategic experts, local communities and donors. Understanding these varied interests will inevitably direct the gap identification process. This can be a constraint on gap identification, as contributors' perspectives and opinions – alongside aid conditionalities prescribed by funding bodies – may excessively broaden or narrow the user's perspective. Nonetheless, engagement with these actors is a central component of gap identification, as understanding (potentially competing) accounts of high-priority gaps supports a full view on the existing landscape and its challenges. It is important to consider technology-sceptic views at this stage, including whether technology is needed or desirable in a given setting (see Table 2.1, Phase 1B), or if challenges should be addressed in a different way.

In some instances, reconciling different perspectives on a given context will require adaptation on the part of the user. For instance, it is helpful to use the language and concepts that are indigenous to the geography or sector under consideration. This requires thorough background research and understanding of the context involved. Communication skills are also crucial here – the use of imagination tools (e.g. different personas representing all stakeholders involved) and creating links between staff at different levels of humanitarian organisations can help to reconcile truths across different settings.[14]

Preparation Phase 2: Technology issue exploration

The purpose of the technology solution exploration stage (see Table 2.1, Phase 2) is to critically examine how emerging technologies can support humanitarian activities. A useful central question for practitioners to consider during this step is 'What can technology enable the humanitarian sector to do?'.[15] To answer this question, humanitarian stakeholders should ensure that they understand how a technology fits into a given context, in alignment with the objectives of a proposed programme or project. This includes considering whether technological innovation is an end goal, or whether it can instead be leveraged to automate tasks and free capacity for more creative activities in the humanitarian sector.[16] The case study in Box 2.2 uses a real-world example to address different aspects of this stage. This example, alongside the case study in Box 2.4, addresses the importance of both organisational and community readiness for emerging technologies. These considerations should be taken into account throughout Step 1 activities.

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13 This step aligns with the Recognition stage outlined in the Humanitarian Innovation Process guide and the 'understand the existing ecosystem' digital development principle presented in the previous section.

14 RAND Europe interviews with foresight experts [2]– March 2024.

15 RAND Europe interview with foresight expert – March 2024.

16 RAND Europe interview with foresight expert – March 2024.

Box 2.2 Case study: Mobile applications for migrant communities[17]

During a workshop discussion on technologies and their relationships with humanitarian values, one stakeholder cited the use of the digital platform RedSafe to provide services for migrants. This technology, which also includes a mobile storage application, was deployed by the International Committee of the Red Cross for use in southern Africa and Central America.[18] The technology was cited as useful for showing migrants where services could be obtained and providing needed information, including flooding and landmine warnings. A participant also raised the utility of the technology for storing digital copies of documents. The technology gave rise to questions around data security, digital exclusion and the potential spread of misinformation.

In the context of preparing for technology deployment, including gap identification and technology issue exploration, there are several questions and considerations that could be addressed for technologies such as these. They include:

- What do we want to enable migrants to do?
- How well-suited are technological solutions to specific migration contexts?
- What activities will technology enable humanitarian practitioners to undertake?

This example is also relevant for other steps in the process. For instance, it can be considered at the technology selection stage (see Section 2.2.2), where practitioners can weigh the ability of technologies to produce learnings for migration studies against the potential risks of these technologies. The case study can also inform cross-cutting themes and considerations (Section 2.6) such as data protection constraints and humanitarian values.

17 RAND Europe, Athena Infonomics and glass.ai, 'Ethical implications of emerging humanitarian technologies' workshop, 5 March 2024.

18 ICRC Innovates. 2022. 'Inside RedSafe, the ICRC's Digital Future.' As of 19 August 2024: https://blogs.icrc.org/inspired/2022/01/11/inside-redsafe-the-icrc-s-new-digital-humanitarian-platform/

2.2.2. Technology selection

Box 2.3 Summary of technology selection activities, considerations and next steps[19]

Objective: Determining which type of programme or project should be implemented, and the scope for emerging technology use.

Activities: Engagement with relevant stakeholders, including technology developers, researchers, humanitarian actors and affected communities, in order to leverage existing knowledge and ensure appropriateness of proposed programmes or technologies.

Constraints/considerations: Data protection and cyber security considerations, including potential use of sensitive data through programmes or technologies and the implications of technology application misuse. Applicability of data protection legislation (e.g. GDPR) to be considered.

Output/next steps: Decisions on implementation scope and set of frameworks for technology application scoping.

Assuming that technologies are useful to address an issue in a given context, the aim of the technology selection stage is to determine the type of programme or project for implementation and delineate the scope of this application. In determining the type of programme or project, humanitarian practitioners should leverage insights gained during preparation to select a technology (such as advanced early warning systems) or a technology area (such as connectivity) for application in a given humanitarian context. Humanitarian practitioners should also consider the predicted financial implications, unintended consequences, long-term benefits and scalability of a technology or technology area.

The latter considerations require practitioners to consider humanitarian values (such as the 'Do No Harm' principle) and objectives (including sustainability) at the technology selection stage. However, consultations with stakeholders in the sector have shown that there is a limit to which such values and objectives are attainable or even desirable. At times, certain values and objectives will take precedence in decision making, often by assessing trade-offs between them. For instance, the selection of a particular technology may produce unintended negative consequences (although these should be limited where possible) and may not be sustainable in the long-term, but may nonetheless produce valuable learnings for humanitarian organisations and the wider sector. Practically, humanitarian values and long-term objectives should be considered during the technology selection stage, but they should be weighted alongside the

19 For more details see Stage 1 and 2 in: Elrha. N.d. 'Humanitarian Innovation Guide.' As of 19 August 2024: https://higuide.elrha.org/

potential further knowledge in the sector. Moreover, any unintended harms should be identified and mitigated.[20]

There are several design decisions that can be taken at this stage. Users can choose between a pilot programme or a scale-up programme to test a technology in a given context or across multiple settings. It is also possible to assess whether selected technologies have previously been used in past projects and/or test cases in the humanitarian or adjacent sectors (e.g. development, peacebuilding) to launch new uses for technologies in a given context. Design decisions may be constrained by financial costs, existing infrastructure to support technology implementation or scaling, and by technology acceptability on the part of users and local communities. Conversations at this stage should centre around technical aspects of a given innovation, including their usability and design. Technological decisions should not be confined to technical and humanitarian experts but should involve end-users from the humanitarian sector as well as the communities that technologies will impact. The case study in Box 2.4, drawn from stakeholder research, provides more insights on conducting inclusive technology selection.

Box 2.4 Case study: Co-design of data management systems with local communities[21]

During stakeholder research, participants discussed the potential for co-design of data management systems with local communities, with the aim of addressing concerns over transparency and accountability in current data protection practices. Stakeholders raised the importance of user-involved and user-centric design to ensure that data systems are usable and protection-centred. One expert stakeholder raised potential concerns over the development of technology within the humanitarian sector, citing greater expertise outside of the sector.[22] Nonetheless, stakeholder conversations point to the necessity of user involvement in design to ensure that commercial interests do not supersede humanitarian values, raising the need to balance expertise with inclusivity.

During the technology selection phase (and into the scoping technology application stage, see Section 2.3), humanitarian practitioners can use this example as a prompt for questions and considerations, which could include, for example:

- Where does technical expertise lie (e.g. in the private sector, within a humanitarian organisation, or elsewhere)?
- How can users become involved in the design and tailoring of solutions?
- How can top-down and bottom-up approaches[23] to technology development, refinement and implementation be balanced?
- How can representation from the local community be incorporated into these processes?
- How can technology specifics be effectively communicated to local communities?

20 RAND Europe, Athena Infonomics and glass.ai, 'Ethical implications of emerging humanitarian technologies' workshop, 29 February and 5 March 2024.

21 RAND Europe, Athena Infonomics and glass.ai, 'Ethical implications of emerging humanitarian technologies' workshop, 29 February 2024.

22 RAND Europe interview with foresight expert – March 2024.

23 In this context, top-down approaches refer to decisions commonly made within humanitarian organisation headquarters and implemented in field activities. Conversely, bottom-up approaches refer to decisions made at the programme or country office levels.

2.3. Step 2. Defining requirements for technology application

Box 2.5 Summary of activities, considerations and next steps during requirement-defining[24]

Objective: Understand how a technology can and should be deployed in a given setting to maximise its feasibility and acceptability.

Activities: Determining specific guidance and implementation needs through consultation with expert stakeholders, assessing familiarity and experience with the selected technology; adjusting project plans according to feedback; modifying technology solutions where possible, utilising feedback from previous and/or parallel programmes and from the specific needs of the setting; assessing potential risks associated with the proposed project/programme.

Constraints/considerations: Data collection, privacy and security considerations; financial considerations, logistical challenges and community appetite; potential mitigation strategies to address risks identified.

Output/next steps: Plan for implementation scale and level of focus; determine the need for guidance tailored to target audience.

Building on activities undertaken during the previous stage, the purpose of Step 2 is to ascertain what is needed to ensure the acceptability of technology interventions. Acceptability, as well as social, technical and financial feasibility, should be considered on a general level throughout every stage of gap identification, guidance development and technology deployment. Nonetheless, during this stage specifically, there is a need to understand how familiar humanitarians and affected communities are with the selected technology. Such assessments will help determine the requirements for successful technology deployment as well as the need for technology guidance in each context. The results of these assessments will also inform subsequent implementation to align with local and programme- or project-level needs and circumstances, including to address potential risks.

Understanding these needs and circumstances will allow users to make further decisions for implementation scale and the specific needs for guidance – however, these decisions require trade-offs and considerations of constraints. Through the workshops conducted in the

24 For more details see Stage 1 and 2 in: Elrha. N.d. 'Humanitarian Innovation Guide.' As of 19 August 2024: https://higuide.elrha.org/

second phase of the project,[25] the study team identified a core area for compromise – on the one hand, the implementation and scaling of technology can fail when the programme is driven from the top down, but on the other hand, consistency in approach can provide logistically useful standardisation and generalisable learnings.[26] While humanitarian settings generate unique conditions and needs for technology, humanitarians should balance the need to develop bespoke solutions with the quality and efficiency gains that could be leveraged from past deployment of technology applications.[27] Deciding on the balance between generalisation and specificity in technology application will be constrained by financial considerations, logistical challenges and community appetite. Conversely, proof of concept for a technology, funding in several settings, and demand at the local level may enable further scale-up and spread. As in other stages, stakeholder engagement is crucial for ensuring adequate needs for guidance development and technology deployment. The case study presented in Box 2.6 provides further insights on the technology application scoping phase and the issues to be addressed therein.

Box 2.6 Case study: 'Red teaming' to ensure data protection and social inclusivity of emerging technologies[28]

During workshop discussions, stakeholders raised the potential utility of 'red teaming'. Dating back to US military practice during the Cold War, 'red teaming' is often applied in cyber security and refers to the use of a testing team to find weaknesses in the existing system.[29] In the humanitarian context, participants argued that red teaming should be used to ensure proper data protection practices and to address the potential social problems that technology could create. Through this practice, risks can be both identified and contextualised in terms of their significance and the groups that they may impact.

As such, during the technology application scoping phase – as well as during technology selection and deployment – humanitarian practitioners could employ red teams to test various sociotechnical elements of emerging technologies. Key considerations during this process include:

- Data protection;
- Usability and accessibility;
- Reliance on infrastructure (i.e. considering the impacts of irregular electricity and/or connectivity on technology);
- Social acceptability and potential negative externalities.

25 Paillé, Pauline, James Besse, Hampton Toole, Chryssa Politi, Shruti Viswanathan, Eunice Namirembe, Jyoti Nayak, Sergi Martorell, Iain McLaren, Christopher Tyson, Charlie Wilkening & Jacob Ohrvik-Stott. 2024. *Emerging technologies in the humanitarian sector: Methodology report*. Santa Monica, Calif.: RAND Corporation. RR-A3192-2. As of 17 October 2024: www.rand.org/t/RRA3192-2

26 RAND Europe, Athena Infonomics and glass.ai, 'Ethical implications of emerging humanitarian technologies' workshop, 29 February 2024.

27 RAND Europe, Athena Infonomics and glass.ai, 'Ethical implications of emerging humanitarian technologies' workshop, 29 February 2024.

28 RAND Europe, Athena Infonomics and glass.ai, 'Ethical implications of emerging humanitarian technologies' workshop, 29 February 2024.

29 Hicks, Marie-Laure, Ella Guest, Jess Whittlestone, Jacob Ohrvik-Stott, Sana Zakaria, Cecilia Ang, Chryssa Politi, Imogen Wade & Salil Gunashekar. 2023. *Exploring red teaming to identify new and emerging risks from AI foundation models*. Santa Monica, Calif.: RAND Corporation. CF-A3031-1 As of 19 August 2024: https://www.rand.org/pubs/conf_proceedings/CFA3031-1.html

2.4. Step 3. Deploying technology and developing guidance

Box 2.7 Summary of technology guidance development activities, considerations and next steps

Objective: Develop guidance to accompany technology deployment.

Activities: Determining appropriate guidance content, format and vocabulary given the specific needs of the deployment context; developing a communication plan to disseminate guidance appropriately.

Constraints/considerations: Accessibility of guidance and relevance to users, including specificity of content and accessibility of format (e.g. electronic versus physical), language and vocabulary.

Output/next steps: Technology deployment and iteration of guidance according to user needs.

Building on the insights from Step 2, the purpose of Step 3 is to produce usable, adaptable guidance that can support effective technology deployment. Guidance should be reflexive, adapting to the realities of implementation on the ground, and should respond to questions and concerns from end-users as they arise following technology deployment. Continuous revision of guidance should be built into the planning process. Moreover, end-users, technology experts and representatives from local communities should be involved in initial guidance development and ongoing revision. Furthermore, as technology-enabled interventions are likely to be deployed across various contexts, there may also be merits in considering whether guidance should be developed as a joint effort between a variety of actors. In line with user-centric ideals, design decisions during this phase include factors such as guidance format (e.g. online or paper) and length of guidance. This should be optimised to the context, including the preferences and digital literacy of end-users, and should be considerate of language requirements in the selected setting. Such requirements also apply to the humanitarian sector itself to ensure that all sector stakeholders benefit from the available guidance, regardless of previous experience with a technology.

Technology guidance should be practically helpful to end-users and should help them to ensure that technology programmes adhere to humanitarian principles before, during and after deployment. Building on stakeholder engagement activities such as workshops and semi-structured interviews, the study team identified valuable insights on key principles in

this area, particularly the importance of data protection. Contributions in this area underlined the importance of technology design in preserving privacy, as well as the existence of guidance on the practical application of data protection legislation such as the General Data Protection Regulation (GDPR) and other geography- and sector-specific legal frameworks and regulations.[30] Where relevant, information on protecting data privacy should be incorporated into guidance, with support from experts and using language that is accessible to end-users. Organising relevant stakeholders and local communities into clusters can help support this co-production of guidance and can ensure its relevance and alignment with local data protection objectives – although stakeholder research identified potential capacity gaps in this area.[31] As a result, technology guidance could ensure that end-users in affected communities are communicated relevant and accurate information regarding the opportunities as well as the potential risks associated with emerging technologies according to the principle of informed consent.[32]

30 RAND Europe, Athena Infonomics and glass.ai, 'Ethical implications of emerging humanitarian technologies' workshop, 29 February 2024.

31 RAND Europe, Athena Infonomics and glass.ai, 'Ethical implications of emerging humanitarian technologies workshop', 5 March 2024.

32 Office for the Coordination of Humanitarian Affairs (OCHA). 2021. *From digital promise to frontline practice: new and emerging technologies in humanitarian action*. As of 19 August 2024: https://reliefweb.int/report/world/digital-promise-frontline-practice-new-and-emerging-technologies-humanitarian-action

2.5. Step 4. Monitoring and assessing technology and guidance deployment

Box 2.8 Summary of technology deployment activities, considerations and next steps

Objective: Implement technology and publish accompanying guidance to achieve project or programme aims, drawing on continuous learnings to adapt as needed.

Activities: Observation of technology and guidance performance; stakeholder engagement (e.g. with practitioners and local communities, and with technical experts where necessary, to determine performance and views).

Constraints/considerations: Limitations to the use of technology guidance in practice; difficulties understanding future changes impacting the project or programme.

Output/next steps: Continuous iteration of guidance; adjustment of technology deployment where needed; building resilience into technology programmes to address possible future shocks.

A crucial aspect of implementing emerging technologies with accompanying guidance is the continuous monitoring of the technology deployment process, enabling prompt responses to implementation challenges and the adjustment of guidance where necessary. Step 4 underlines the non-linear nature of the technology and guidance deployment process, as implementation does not preclude return to previous stages in the process (Steps 1 to 3). Crucially, during this step users should ensure that there is a feedback loop between Steps 3 (Deploying technology and developing guidance) and 4 (Monitoring and assessing technology and guidance deployment) throughout the length of a given programme. Users should be open to learnings at each stage of programme preparation and deployment, as the realities of implementation may impact decisions on scale and technology applications.

Continuous evaluation is necessary to ensure that technology guidance is adapted and tailored to programme users' and beneficiaries' needs following technology deployment. Accordingly, guidance documents should be considered as 'living documents' subjected to various iterations based on experience and knowledge developed iteratively over the course of a programme (or when considering replicating or expanding pilot programmes into new contexts). Such activities can also ensure acknowledgement of and action towards negative or unintended externalities produced by a given programme. Stakeholders consulted during project workshops identified the particular importance of using continuous evaluation to produce lessons for the sector, including through 'coalitions of goodwill', or groups of stakeholders with relevant knowledge that can work together

to understand and address technology implementation issues.[33]

Stakeholders from the sector cited the utility of these coalitions in producing learnings for the wider sector, including through the identification and development of necessary gatekeeping standards. To do so, the humanitarian sector could leverage existing tools aimed to support monitoring and evaluation (M&E) activities relating to the use of technologies. For example, the World Food Programme (WFP) developed an evaluation framework in 2022 on the use of technology in constrained environments. From the initial M&E activities conducted, the WFP also identified the need to develop formal processes to ensure the knowledge gained on the use of emerging technologies in a specific context is not limited to the project team but can benefit the whole sector.[34] The framework developed through a joint programme between Elrha and the Active Learning Network for Accountability and Performance (ALNAP) to assess humanitarian innovation could be a useful resource for humanitarian actors looking to assess the performance of a project or programme in relation to use of technology. This tool also addresses the challenge of monitoring innovation, often mis-adapted to with existing M&E instruments. Similarly to innovation, the adoption of emerging technologies follows an iterative process that also needs to be tailored to the context in which it is implemented.[35]

Users should recognise that implementation contexts are dynamic, not static, and that particularly volatile settings will present challenges to technology deployment. The humanitarian sector, by nature, involves conflict, natural disaster, or other exogenous pressures that can make the deployment of technology very difficult. This can limit the ability of technology users to understand what the future holds and tailor technology deployment to future needs.[36]

2.6. Cross-cutting themes and considerations

Stakeholder consultations and desk research yielded useful insights on factors that should be considered by technology users in the humanitarian sector across every stage of technology implementation and accompanying guidance development, including in the technology scoping, introduction and adaptation stages. This section outlines these themes, which include humanitarian values such as privacy-, humanity-, autonomy- and protection-centredness, alongside their practical manifestations in the form of stakeholder engagement and participatory, user-centric design. Cross-cutting considerations also include the potential social and technical constraints on technology implementation and adoption, which should be recognised at all stages of guidance development and technology implementation. In addition to the

33 RAND Europe, Athena Infonomics and glass.ai, 'Ethical implications of emerging humanitarian technologies' workshop, 29 February 2024.

34 Word Food Programme (WFP). 2022. 'Summary report on the strategic evaluation of WFP's use of technology in constrained environments.' WFP/EB.1/2022/6-A. As of 19 August 2024: https://executiveboard.wfp.org/document_download/WFP-0000135904

35 Warner, Warner, Alexandra T. 2017. 'Monitoring humanitarian innovation.' HIF/ALNAP Working Paper. London: ODI/ALNAP. As of 19 August 2024: https://www.elrha.org/wp-content/uploads/2017/03/hif-alnap-monitoring-humanitarian-innovation-2017.pdf

36 RAND Europe interview with foresight expert – March 2024.

pursuit of specific humanitarian objectives in conflict-affected and fragile contexts, the implementation of emerging technologies within communities will also require trade-off decisions between multiple objectives (e.g. inclusivity, accessibility, equity).[37]

2.6.1. Humanitarian principles and ethics

When looking to embed emerging technologies into humanitarian activities, the study identified a need to ensure that core humanitarian principles (i.e. humanity, impartiality, neutrality and independence) remain the guiding principles.[38] During project activities exploring potential challenges relating to the adoption of emerging technologies, stakeholders involved in primary research reiterated the importance of humanitarian values as the foundation for all activities in the sector, including in an operating humanitarian environment in which technologies are often developed by private-sector actors and not necessarily within humanitarian organisations themselves. These principles and values have been incorporated throughout this guidance as both practical and ethical considerations to ensure optimal uptake and success of technology in line with humanitarian values and principles. Some values and concerns cited over the course of the project activities include the following[39]:

- Ensuring responsibility for principles in technology and imbuing them with humanitarian values;
- 'Do No Harm', including avoiding disinformation, manipulation or hostile outside uses of technology;
- Prioritising trust from local communities;
- Accessibility;
- Privacy by design and by default; and
- The co-development and co-implementation of technology.

Applying these values invokes a valuable question raised during stakeholder engagement activities: 'who does a given vision privilege and who does it dispossess?'[40] Humanitarian activities, both through research and field activities, should seek to privilege local communities' priorities and aims, without allowing commercial interests or hostile powers to use emerging technologies against recipients. Practically, taking values into consideration should also support the implementation of technology, as privileging local communities and ensuring that solutions are deployed for humanitarian, rather than commercial, purposes can improve the quality and relevance of deployment.

2.6.2. Understanding and inclusion of crises-affected communities

Understanding the local context in humanitarian activities is a vital cross-cutting consideration for the implementation of suitable emerging technologies and the development of accompanying guidance. Embedding the needs of crises-affected communities is core to humanitarian action

37 Gralla, Erica, Jarrod Goentzel & Charles Fine. 2014. 'Assessing Trade-offs among Multiple Objectives for Humanitarian Aid Delivery Using Expert Preferences.' *Production and Operations Management* 23(6): 978–89. As of 19 August 2024: https://doi.org/10.1111/poms.12110

38 UNHCR. 2024. 'Emergency handbook: Humanitarian principles.' As of 19 August 2024: https://emergency.unhcr.org/protection/protection-principles/humanitarian-principles

39 RAND Europe, Athena Infonomics and glass.ai, 'Ethical implications of emerging humanitarian technologies' workshop, 5 March 2024.

40 RAND Europe interview with foresight expert – March 2024.

but can face some challenges with regards to emerging technologies. The digital divide between those who have access to emerging technologies and those who do not remains a challenge for the humanitarian sector. Understanding the availability of infrastructure to support specific technologies and the suitability of certain technologies to the physical conditions of an area as well as social realities can be a major enabler of the adoption of emerging technologies.

It is anticipated that specific aspects of a programme or technology application are likely to differ across contexts.[41] Emerging technology guidance should be diffuse in terms of its reach to different stakeholders involved in humanitarian practice based on local or actor-specific digital literacy skills. Understanding where guidance applies both generally and specifically requires an understanding of: (1) the roles and information needs of different stakeholders; (2) the relevance of emerging technology to their specific role(s); and (3) the optimal format for guidance. For instance, guidance intended for personnel at all levels should involve an understanding of data privacy and policies, but it should be made intelligible and digestible for different stakeholders with practical actions and consequences included for their consideration.[42]

Through stakeholder research, the study team identified examples of where an understanding of local contexts is important, as well as a set of principles for tailoring guidance and technologies to both humanitarian-sector users and local communities. One participant used an anecdote about a cash distribution programme undertaken by a humanitarian organisation to illustrate how value for an organisation may not translate into value for affected communities, due to the format of distribution and the societal backlash against it.[43] Likewise, expert interviewees cited the importance of deep understanding for the local context and communicating in a suitable manner to this context (see Box 2.9).

The local context also includes factors among humanitarian practitioners, such as skills and the alignment of programme incentives at multiple levels. Some examples from workshop conversations include ensuring the sufficiency of digital skills among humanitarian end-users and support staff, alongside the development of technology that does not require significant technological expertise. The local context also involves understanding cost constraints and aligning these with innovation incentives; for instance, workshop participants argued that privacy could be optimised using local-first and secure data storage technology, which could also produce cost savings in resource-strained environments, as opposed to a cloud-first policy. It was also recognised by participants, however, that constraints relating to infrastructure (e.g. electrical grids to power local data centres) could limit the development of such tools.[44]

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41 Such differences and variations are presented in the five technology deep dives conducted by the study team under Phase 2 of this project (i.e. camp monitoring systems, privacy-enhancing technologies, service aggregation and coordination platforms, early warning systems and advance manufacturing). See Paillé, Pauline, James Besse, Hampton Toole, Chryssa Politi, Shruti Viswanathan, Eunice Namirembe, Jyoti Nayak, Sergi Martorell, Iain McLaren, Christopher Tyson, Charlie Wilkening & Jacob Ohrvik-Stott. 2024. *Emerging technologies in the humanitarian sector: Technology Deep Dive Series*. Santa Monica, Calif.: RAND Corporation. RR-A3192-1. As of 17 October 2024: www.rand.org/t/RRA3192-1

42 Athena Infonomics interviews [2] – April 2024.

43 RAND Europe, Athena Infonomics and glass.ai, 'Ethical implications of emerging humanitarian technologies' workshop, 29 February 2024.

44 RAND Europe, Athena Infonomics and glass.ai, 'Ethical implications of emerging humanitarian technologies' workshop, 29 February and 5 March 2024.

Box 2.9 Case study: Cash distribution programmes and the local context

During stakeholder research, participants discussed the importance of tailoring technology interventions to the local context, including consideration of social norms within an intervention context. A participant raised the example of a cash distribution programme that provided mobile phones to teenage girls. The intervention was met with opposition from local communities, who saw this as a risk to teenage girls' safety. Stakeholders thus discussed the need for a sociological and anthropological approach to technology implementation, which was reiterated throughout other elements of stakeholder research by an expert who cited the potential for misalignment between humanitarian organisations' goals and local communities' desires.[45]

Building on the lessons of this case study, crucial considerations for humanitarian practitioners and organisations throughout the scoping, guidance development and technology deployment stages include:

- Do local communities want technology to solve their problems, and will it prove helpful?
- Will local communities use technologies when they are made available?
- How might technologies negatively impact the safety and security of local communities? Will the perception of negative safety and security outcomes impact uptake?
- What information should be provided in guidance to ensure public trust in technologies being deployed?

2.6.3. Stakeholder engagement

Stakeholders from diverse parts of humanitarian organisations and from local communities should be engaged at every stage of the process. The rationale for this participatory approach is both ethical and practical. Incorporation of diverse voices into technology selection, guidance development and implementation processes addresses humanitarian values such as autonomy, equity and consent, and underscores the central value of humanity in the sector. Moreover, practically speaking, engagement with both local humanitarian staff and communities in humanitarian settings can also support effective technology selection and effective, culturally sensitive implementation. This implementation should thus draw on locally relevant communication methods.[46]

45 RAND Europe interview with foresight expert – March 2024.

46 RAND Europe interview with foresight expert – March 2024.

4.6.4. Communications and coordination

Alongside stakeholder engagement, guidance users should engage meaningfully and thoroughly with local humanitarian staff and communities affected by programmes with the aim of optimising technology use as well as identifying lessons and best practices in the sector. Procedurally, this involves ensuring opportunities for feedback and engagement, including through clustered systems for feedback and information sharing. These activities may foster not only the effectiveness of a programme (e.g. by learning from previous experiences and potential errors, establishing good practices for future programmes) but also enhance coordination between stakeholders.[47]

Communications materials, including technology guidance, should also be designed in a format that is culturally relevant. This was a key insight from expert interviewees, who emphasised the utility of artistic expression and adaptation to local practices in terms of language around innovation and the future.[48] Workshop participants underlined the importance of learning through trial and error, disputing the universality of values such as 'Do No Harm' and 'sustainability'.[49] In practice, applying learning in this way requires communication efforts so that humanitarian actors can share both successes and failures to improve general knowledge in the sector.

Box 2.10 Case study: Smart translation and communications[50]

Stakeholder research participants discussed the potential benefits of emerging technologies for communications, including smart translation tools. They considered the potential problems associated with these tools, including the use of translation to circumvent local authorities and silence their voices. Conversely, participants cited their potential use to promote greater equity, as translation tools could more readily bring local voices to the global stage.

Some considerations for the use of communications tools include:

- What is the quality of the technology being deployed?
- Who does this technology benefit?
- Who is the target user of this technology?

47 RAND Europe, Athena Infonomics and glass.ai, 'Ethical implications of emerging humanitarian technologies' workshop, 5 March 2024; International Council of Voluntary Agencies (ICVA). 2021. 'The IASC and the global humanitarian coordination architecture: How can NGOs engage?' Icvanetwork.org. As of 19 August 2024: https://www.icvanetwork.org/uploads/2021/07/Topic_1_humanitarian_coordination.pdf

48 RAND Europe interviews with foresight experts [2]– March 2024.

49 RAND Europe, Athena Infonomics and glass.ai, 'Ethical implications of emerging humanitarian technologies' workshop, 29 February 2024.

50 RAND Europe, Athena Infonomics and glass.ai, 'Ethical implications of emerging humanitarian technologies' workshop, 5 March 2024.

2.6.5. Constraints and barriers

Leaders of emerging technology programmes for the humanitarian sector should take social and technical barriers to technologies into account, including end-users' and local communities' scepticism of emerging technologies, alongside data protection considerations. This section outlines the nature of constraints and how they could be addressed to strengthen practices in technology guidance and implementation.

Data protection and cyber security

Stakeholder research participants particularly cited the importance of data protection and cyber security. For participants, this applies throughout the entire innovation life cycle, including data collection ethics, the protection of sensitive information, and safeguarding against misuse by potentially malicious actors.[51] As in other areas, there are both practical and normative considerations that are relevant to this constraint. Practically speaking, insufficient data protection and cyber security accommodations could prove detrimental to humanitarian activities, through a loss of trust from local communities and through the use of data to target vulnerable groups (e.g. refugees and internally displaced persons). In a normative sense, these externalities directly clash with humanitarian values including autonomy, impartiality and 'Do No Harm'. In this context, the Inter-Agency Standing Committee (IASC) has developed 11 guiding principles to foster 'data responsibility', including the need to ensure that crises-affected communities 'are included, represented and empowered to exercise agency through data management'.[52] In practice, individual users of technology should be able to exercise agency over the collection, storage, use and sharing of data as well as the possibility to access data, make corrections or request the deletion of their data.[53] These principles also emphasise the need for humanitarian organisations to establish clear data management schemes and to develop bespoke agreements and protocols to strengthen humanitarian programmes while minimising the risks of crises-affected individuals.[54]

Addressing these concerns requires concerted action from humanitarian actors, commercial providers of technologies and cybersecurity protections, and local communities. The case study in Box 2.11 outlines some examples and considerations, derived from stakeholder research.

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51 RAND Europe, Athena Infonomics and glass.ai, 'Ethical implications of emerging humanitarian technologies' workshop, 29 February and 5 March 2024.

52 Office for the Coordination of Humanitarian Affairs (OCHA). 2021. *From digital promise to frontline practice: new and emerging technologies in humanitarian action*. As of 19 August 2024: https://reliefweb.int/report/world/digital-promise-frontline-practice-new-and-emerging-technologies-humanitarian-action

53 Office for the Coordination of Humanitarian Affairs (OCHA). 2021. *From digital promise to frontline practice: new and emerging technologies in humanitarian action*. As of 19 August 2024: https://reliefweb.int/report/world/digital-promise-frontline-practice-new-and-emerging-technologies-humanitarian-action

54 Inter-Agency Standing Committee (IASC). 2021. 'Data Responsibility in Humanitarian Action, Operational Guidance. Results Group 1 on Operational Response.' As of 19 August 2024: https://interagencystandingcommittee.org/sites/default/files/migrated/2021-02/IASC%20Operational%20Guidance%20on%20Data%20Responsibility%20in%20Humanitarian%20Action-%20February%202021.pdf

Box 2.11 Case study: Embedding data protection in humanitarian practice – examples and opportunities[55]

Stakeholder research participants discussed data protection at length, and cited examples and opportunities for further action in this space. Two examples of data protection technologies cited by participants include the RedSafe app launched by the International Committee of the Red Cross (ICRC) and the work of the United Nations International Computing Centre (UNICC) in launching extraterritorial servers to protect data from host countries. They also cited opportunities for storing data locally and resisting cloud-first solutions and prioritising data minimisation as a core principle. However, participants cited the need to do more, particularly given the tendency towards cloud storage and real-time data collection across numerous existing humanitarian technologies.

Some opportunities in this space include:

- Aligning cost-savings incentives with data protection incentives;
- Establishing and continuously updating data risk stratification classifications;
- Developing security innovations in tandem with data collection and analysis innovations.

Technology scepticism

Technology scepticism was cited as a key challenge among workshop participants, who understood it as local communities' hesitancy to adopt emerging technologies given a lack of understanding around their functioning and purposes. Contributors argued that the burden for addressing this scepticism should fall on technology developers and humanitarian organisations rather than on recipient communities. For some participants, scepticism represented a strength rather than a deficiency within local communities, and technology developers should be required to earn the trust of technology commissioners, users and beneficiaries.[56] While scepticism can represent a strength for the sector to engage in self-critique and could ensure technologies are designed and implemented with the participation of end-users and recipients, it should be matched with proactive actions to improve technology and address acknowledged risks. For more details, see case studies on the local design of data management programmes (Box 2.4) and on red teaming (Box 2.6).

55 RAND Europe, Athena Infonomics and glass.ai, 'Ethical implications of emerging humanitarian technologies' workshop, 5 March 2024.

56 RAND Europe, Athena Infonomics and glass.ai, 'Ethical implications of emerging humanitarian technologies' workshop, 5 March 2024.