The digital capacity of German humanitarian action: Moving from aspiration to reality

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Content

Abbreviations

AI	Artificial Intelligence
AOR	Area of Responsibility
BHA	USAID Bureau for Humanitarian Assistance
BMZ	German Federal Ministry for Economic Cooperation and Development
BMDV	German Federal Ministry for Digital and Transport
CDAC	Communicating with Disaster Affected Communities
CHA	Centre for Humanitarian Action
ChatGPT	Chatbot Generative Pre-Trained Transformer
CSO	Civil Society Organisation
CVA	Cash and Voucher Assistance
DG ECHO	Directorate-General for European Civil Protection and Humanitarian Aid Operations
DPIA	Data Protection Impact Assessment
EU	European Union
FCDO	UK Foreign, Commonwealth and Development Office
FTS	OCHA Financial Tracking System
GDPR	EU General Data Protection Regulation
GIS	Geographic Information System
GFFO	German Federal Foreign Office
HDTI	Humanitarian Data and Trust Initiative
HDX	Humanitarian Data Exchange
IASC	Inter-Agency Standing Committee
ICRC	International Committee of the Red Cross
ICT	Information and Communication Technology
ID	Identity
IFRC	International Federation of Red Cross and Red Crescent Societies
IHL	International Humanitarian Law
KYC	Know Your Customer
MDH	Misinformation, Disinformation and Hate Speech
MIS	Management Information System
ML	Machine Learning
MS	Microsoft
NGO	Non-governmental Organisation
NLP	Natural Language Processing
OCHA	UN Office for the Coordination of Humanitarian Affairs
ODK	Open Data Kit
PREVIEW	Prediction, Visualisation, Early Warning
SDGs	Sustainable Development Goals
UAV	Unmanned Aerial Vehicles
UK	United Kingdom
UN	United Nations
US	United States
USAID	United States Agency for International Development
WFP	World Food Programme
WHO	UN World Health Organisation

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1. About humanitarian action and digital technologies

Today's humanitarian crises are marked by violent conflicts and climate- and weather-related disasters, which exacerbate socio-economic vulnerabilities and compel individuals to leave their homes or endure protracted situations of insecurity and fragility. As a result, the number of people affected by crises and requiring humanitarian assistance is steadily growing. Paradoxically, despite this escalating demand, humanitarian funds are consistently shrinking.

In response to the ongoing conflicts and crisis in Ukraine and the Middle East, Germany, in collaboration with its European neighbours and the European Union (EU), is recalibrating its foreign policies and priorities. The focus of humanitarian narratives is gradually shifting towards security-related actions aimed at safeguarding peace and freedom, as well as protecting democratic order and values (Bundesregierung 2023). While German humanitarian action remains needs-driven and principled (Hövelmann and Südhoff 2023), the shrinking budget for 2024 continues fuelling longstanding discussions about more efficient and effective humanitarian action. Notably, Germany, alongside key donors such as the US, UK and Sweden, is slated to reduce its humanitarian budget by over 10% in 2024 compared to the previous year and by 25% when compared to 2022 levels (Kreidler, Hövelmann, and Spencer 2023).

Humanitarian practitioners are pushed to increasingly embrace digital innovation

To deliver greater efficiency, policy-makers and global donors worldwide are advocating the use of evidence-based data to substantiate the impact on humanitarian performance. This directive is pushing humanitarian practitioners to increasingly embrace digital innovation and massively engage in data collection (ECHO 2023; Komuhangi et al. 2023; ALNAP 2022; Madianou 2021; 2019; Auswärtiges Amt 2019b).

Nevertheless, this trend is not a surprising development exclusive to the humanitarian realm. Globally and across all sectors, digital technologies have revolutionised the way people live, work, and interpret the world. The utilisation of data and digitalisation in the humanitarian sector has long been lauded for its potential to cut costs. The Covid-19 pandemic further underscored the opportunities to strengthen locally-led humanitarian responses through improved digital engagement for all humanitarian actors, including affected people (Düchting 2023a; OCHA 2021; Bryant et al. 2020). In today's landscape, misinformation and disinformation permeate daily news, fostering heightened mistrust against states, societies, and humanitarian actors. Whether we embrace it or not, digital technologies have become indispensable, rendering humanitarian action and challenges in the 21st century inevitably digital by nature.

The infusion of technologies has rendered the humanitarian system more dynamic yet also more complex, with the emergence of new stakeholders operating in the system. This evolution requires new ways of collaboration, types of partnerships, governance models, and forms of regulations. But the humanitarian sector's binary approach to digitalisation, hitherto, makes people either overemphasise the potential of digital technologies or oversimplify its use by focusing on threats and risks only (Devidal 2023). This challenge becomes more pronounced with new and emerging technologies like Artificial Intelligence (AI). The rapid pace of technology development is often challenging to keep up with, leaving individuals feeling overwhelmed and powerless to influence this development. Consequently, the humanitarian sector is at risk of stratifying into humantiairan actors with adequate strategic foresight and those lagging behind, adhering to traditional ways of working.

Digitally transforming an already complex humanitarian system requires sufficient digital capacities, adequate capabilities, and shared responsibilities. Digital literacy and data literacy are needed to decomplexify the system. Hence, navigating a digital humanitarian ecosystem while responding to shrinking humanitarian funds involves future-proof leadership. New skill-sets and tools will "enable [humanitarian] leaders to be anticipatory and engage with trends and future signals with curiosity and openness. [...] Leadership is perhaps the single most important feature [to] successfully embrace innovation. The role that leaders, at all levels, play in promoting cultures of innovation, on creating conditions for innovation to thrive and for helping to grow practices of risk-taking and experimentation are essential. [...] When you

Leadership is perhaps the single most important feature to successfully embrace innovation

have fewer resources, you have to make choices, and good leaders make good choices and decisions" (Guzeviciute and Varghese 2023, 13, 32).

Conducting context-specific analysis and adopting agile, anticipatory management approaches will not only facilitate humanitarian efficiency but the integration of digital considerations into humanitarian action, effectively balancing the benefits and risks of digitalisation. Digitally transforming a traditionally functioning system is about creating incentives for diverse humanitarian actors to adapt and change their way of working.

Germany's forthcoming humanitarian strategy provides an apt opportunity to set strategic priorities for Germany's digital humanitarian capacity and future role in navigating this complex digital humanitarian ecosystem. A future-proof humanitarian strategy cannot avoid taking digital trends and developments into account. The growing prominence of cash interventions will continue shaping discussions among humanitarians, placing emphasis on the use of digital technologies and topics such as identity management, digital payments, data sharing, and interoperability (Calp Network 2023). The increasing prevalence of cyberattacks, coupled with challenges posed by misinformation, disinformation and hate speech (MDH), will further influence the way humanitarians communicate and work to protect affected people and their data from harm. Last but not least, new and emerging technologies like AI will further shape the digital era of humanitarian action and the way data and technologies are used. The existence of numerous unanswered questions and uncertainties provides an opportunity for more interdisciplinary and cross-functional exchange for building common governance structures and enabling user-centric design (Bundesministerium für Digitales und Verkehr 2023; 2022; Egle and Hess 2022; Voelsen 2022; VENRO 2019b).

A future-proof humanitarian strategy cannot avoid taking digital trends and developments into account

The paper discusses the digital humanitarian capacity of German humanitarian actors, examining their preparedness to respond to future digital trends. It looks at German policy and operational levels, specifically addressing ministerial decision-makers at the German Federal Foreign Office (GFFO) and humanitarian practitioners at German NGOs. Central to the discussion is the inquiry into their political and operational role in spearheading the digital transformation of the humanitarian system. The underlying assumption is that a deficiency in capacity could result in opportunities and efficiency gains across all levels. In conclusion, the paper puts forward potential actions for these actors, outlining a pathway from mere aspiration to tangible implementation, actively propelling the digital transformation of the humanitarian system.

2. Methodological approach

The paper was informed by Centre for Humanitarian Action's (CHA's) project on data and digitalisation, which builds on previous research on digital accountability, past debates and CHA events, such as the conference on "Tackling power imbalances in humanitarian action – with technology and locally led management?!" (see Centre for Humanitarian Action 2023; Centre for Humanitarian Action, CALP Network, and Ground Truth Solutions 2023; Düchting 2023a).

The research for this paper was conducted between August and November 2023, and organised into four phases:

(1) A literature review and digital ethnography which comprised documents such as academic papers, operational reports, policies, and strategies, as well as opinion pieces like articles, blogs, social media content, podcasts, and relevant online events about the use of technology in the social sector, including the humanitarian and development sectors, its trends, and impacts.

(2) An analysis of selected grant proposal templates, including Germany (GFFO, Ministry for Economic Cooperation and Development (BMZ)), European Civil Protection and Humanitarian Aid Operations (DG ECHO), UK Foreign, Commonwealth and Development Office (FCDO), and USAID's Bureau for Humanitarian Assistance (BHA). The analysis was used to identify current practices in managing data and technologies within relevant grant proposals.

(3) Six qualitative, semi-structured interviews with key informants and experts actively engaged in various aspects of the humanitarian system's digital transformation process. This included four representatives from different multi-stakeholder networks, two representatives from an international organisation and one independent expert. An interview guide was used to facilitate the discussion (see annex). The interviews were conducted online between September and October 2023, and documented as memos.

These interviews, building on preliminary research (Düchting 2023a), aimed to identify the latest digital trends and expectations towards Germany's upcoming humanitarian strategy. Additionally, they served the purpose of enriching the literature analysis with diverse operational perspectives. However, due to the limited number of interviews, the representative sample's significance is constrained.

(4) The peer review was carried out by CHA and an independent expert. Interviewees were also given the opportunity to provide feedback.

3. Navigating a complex, digital humanitarian ecosystem

The opportunities and challenges stemming from the application of digital technology in the humanitarian sector are not confined to a specific sector. Most, if not all, sectors struggle with similar questions around the ethical use of new and emerging technologies, data protection and cybersecurity. The evolution from techno-solutionism to a more nuanced approach aimed at the purposeful utilisation of technology in humanitarian action has transformed the digital humanitarian ecosystem into a highly complex landscape.

Technosolutionism refers to decision-makers' willingness to utilise digital technologies to solve complex societal problems which require more than solely technical solutions (Beduschi 2019; Duffield 2016).

For some, digital technology is a blessing to increase efficiency and participation across the humanitarian system. However, for others it is seen as a curse, only further complicating an already complex humanitarian ecosystem. Humanitarian experts often criticise the sector's binary approach to technology. You are either a tech optimist overexcited about technology, or a tech sceptic oversimplifying its usage with exaggerated fears and putting risks over benefits (Devidal 2023; Düchting 2023a; OCHA 2021). Unfortunately, there is seldom a middle ground, potentially overlooking valuable potentials in the process.

To still strengthen the ability to innovate and effectively navigate digital opportunities alongside humanitarian challenges, there is a growing vision for new leadership profiles. To support future, innovative humanitarian leaders, the system "need[s] to shift away from hierarchical structures that over-exercise power and control, [...] have more efficient decision-making that enables agility, and to make real progress on strengthening inclusion in decision making structures, improved commitment and investment in nurturing future leaders, better mechanisms to address ineffective leadership and a better balance of power and resources" (Guzeviciute and Varghese 2023, 8). Hence, in the context of rapidly emerging technologies and uncertainties, compounded by the prevalence of disinformation and a decline in trust in institutions and systems, the question arises: What might efficient decision-making and inclusive structures look like?

The following analysis will discuss this question around ethical considerations, transparency and accountability, governance and shared responsibilities, agility, and due diligence. These concepts are identified as key strategic capacities and capabilities to future-proof digital humanitarian action and leadership.

3.1 Looking inward: Germany's digital transformation and an invisible humanitarian action

Germany's capacity to digitally transform humanitarian action is interlinked with its national digital transformation process

Germany's capacity to digitally transform humanitarian action is interlinked with its national digital transformation process. While not delving into specific details, Germany's last humanitarian strategy acknowledged technological development as a great opportunity for humanitarian action and identified the protection of sensitive data as an important strategic focus area (Auswärtiges Amt 2019b). Meanwhile, the country's digital transformation has advanced, notably marked by GFFO unveiling its own digital strategy, which is predominantly focusing on foreign policy (Auswärtiges Amt 2021).

The Federal Ministry for Digital and Transport (BMDV) has been at the forefront of steering Germany's overall digital agenda. This encompasses initiatives related to digital and data literacy, digital inclusion, digital partnerships with the Global South and international organisations, data integration, system's interoperability, and technologies *made in Germany* (Bundesministerium für Digitales und Verkehr 2023; 2022).

Therein, Germany's digital transformation is greatly influenced by the EU's priorities and policies, which

follow a strong people-driven focus towards data protection and privacy (e.g., the EU's General Data Protection Regulation (GDPR))[1]. The national strategies analysed in this paper also take an interdisciplinary, cross-sector approach reflecting Germany's security, foreign and development policies and putting people at the centre. In contrast, interlinkages with humanitarian specificities were hardly, if at all, mentioned in any of these strategies, leaving the humanitarian sector acting predominantly in isolation (Bundesministerium für Digitales und Verkehr 2023; 2022; Bundesregierung 2023; Deutscher Bundestag 2023; Kreidler, Hövelmann, and Spencer 2023; Auswärtiges Amt 2021; Bundesministerium für wirtschaftliche Zusammenarbeit und Entwicklung 2021; 2019).

This cross-sector approach also underscores operational realities in humanitarian action that are increasingly interdisciplinary in nature, particularly in the realm of AI. Operational aspects, such as the integration or interoperability of humanitarian data and social protection schemes, often involve discussions among different stakeholders. This is especially relevant to identity management and the sharing of financial data for cash and voucher assistance (CVA) as well as humanitarian outcomes for CVA coordination purposes, compliance data (e.g., related to counter-terrorism claims, fraud, or corruption), feedback and appraisal data for accountability purposes and programme quality. In practice, the management of humanitarian data systems and accountability mechanisms extends across sectors (Calp Network 2023; 2022; Deutscher Ethikrat 2023; Worthington and Düchting 2023).

Regardless of individual mandate, data and digitalisation seem to be bridging the sectors, notably the humanitarian, development, and migration sectors. Germany's international approach to „close the digital divide (infrastructure, access, exploitation, data inequality) [for] developing countries [to] have a fair chance to generate their own data, use available data, and generate value from data" (Egle and Hess 2022) is particularly interesting and holds significant potential for humanitarian action. This approach has the potential to impact Germany's principled approach and choice of data systems in times of humanitarian crisis. For example, an in-country data system built on accurate, comprehensive, and up-to-date data has the potential to increase efficiency by enabling faster responses and saving time that would otherwise be spent re-registering affected people and aid recipients during times of crisis. However, a principled approach that acknowledges humanitarian principles, human rights, and the doing no (digital) harm imperative is nevertheless needed to guide and chose such data system, as highlighted by one expert. Despite the best intentions in theory, using existing national data systems such as social protection schemes for humanitarian assistance remains challenging in practice. Recent experiences, such as in Ukraine where humanitarian data is intended to be integrated into the national e-governance system Diia, have proven operationally difficult and debatable in terms of usefulness from a humanitarian perspective[2]. One reason for this difficulty involves a lack of guidance and competing objectives, as different humanitarian and development donors, at times representing the same government, pull in different directions. This divergence makes it challenging for practitioners to navigate diverse positions and diverging directions and to contribute to one common response.

A principled approach that acknowledges humanitarian principles, human rights, and the doing no (digital) harm imperative is needed

In all sectors, Germany's normative framework, as outlined in its national data strategy, stresses the need for greater exchange and increased learning aiming at translating abstract norms into specific guidelines, and facilitating context-specific decision-making: "In order for different stakeholders to learn about data-based solutions, examples of applications need to become known. In this way, concepts and applications that work can have a broader impact. In this way, we contribute to reducing uncertainties and enable the exploitation of opportunities from data on a level playing field" (Bundesministerium für Digitales und Verkehr 2023, 28).

In conclusion, Germany's digital landscape at both policy and operational levels presents numerous opportunities for humanitarian actors to leverage. There is a notable gap where humanitarian considerations are seldom reflected in German digital policies, and, conversely, digital considerations are rarely reflected in German humanitarian strategies. While humanitarian decision-making generally adheres to principled approaches, this commitment does not necessarily extend to the responsible use of digital technologies. Digital innovation is managed in isolation without taking system-wide considerations into account. This raises fundamental questions about Germany's digital capacity to actively shape the digital humanitarian ecosystem.

Germany's digital humanitarian capacities and priorities

Glancing at Germany's current humanitarian strategy and latest reports about the state of its humanitarian assistance suggests that digitalisation, apart from referencing technologies for data-based evidence to strengthen anticipatory action, is not a strategic focus for German humanitarian action (Auswärtiges Amt 2022; 2019a; 2019b).

The policy level

Various GFFO strategies, such as the digitalisation strategy, touch upon the digital transformation of GFFO's different areas of work, focusing on foreign policy and including humanitarian action, albeit without providing specific details. As an illustration, GFFO's interdisciplinary flagship project, the early warning portal PREVIEW (Prediction, Visualisation, Early Warning), is often cited for its ability to predict political and humanitarian crises, as well as natural disasters. According to GFFO, this portal plays a crucial role in informing Germany's foreign and security policies. It is based on publicly available data pertaining to the political, economic, and societal situation, conflict, and violence. However, there is limited information about the specific sources of the data, and it remains unclear if and how the portal is used for humanitarian decision-making (Deutscher Bundestag 2023; 2021; Auswärtiges Amt 2020).

In addition, GFFO has no dedicated strategy explicitly addressing the type of humanitarian innovation investments, cross-functional collaboration within the Ministry, potential implications of digital technologies or standards that should guide humanitarian practitioners. In contrast, organisations like DG ECHO, have a dedicated policy framework to guide humanitarian actors by explicitly highlighting the importance of promoting a human-centric digital transformation while adhering to the *do no harm* imperative, at minimum (ECHO 2023; Veron 2022; Auswärtiges Amt 2021).

The lack of capacity is often cited as a primary obstacle preventing GFFO from strategically engaging in different topics at both national and international levels (Hövelmann and Südhoff 2023; Brockmeier 2021; 2020). For example, the demand for more strategic involvement in-country often collides with the lack of experienced, non-rotational staff in Berlin and at German Embassies. This lack of capacity or strategic prioritisation is also reflected in the absence of comprehensive data systems to manage humanitarian funding allocations as GFFO does not generate any aggregated data about the type of thematic sectors financed and budgets spent (ibids.). At the same time, Germany was identified as the largest humanitarian donor, in terms of funding amounts, to invest in humanitarian innovation between 2017 and 2021 ($150m), followed by the EU ($50m) and the US ($45m) (Issa et al. 2022, 17, 39)[3].

The lack of capacity is often cited as a primary obstacle preventing GFFO from strategically engaging in different topics

The initial stages of crafting Germany's new humanitarian strategy indicate a stronger focus on "innovation and data", as stated in one of the first drafts shared for discussion with the German humanitarian community. The inclusion of digital considerations has been positively received by intereviewees, with expectations for Germany to act as a future leader and drive an "eco-systemic leadership approach" (Lay 2023). This would involve fostering a sophisticated, digital humanitarian ecosystem informed by Germany's principled approach. Experts raised the expectation that Germany will support humanitarian practitioners by applying field-oriented policies and including digital considerations in German humanitarian diplomacy across sectors, and with tech companies. This approach is contingent on a robust political willingness to act as an honest and neutral broker. Notably, one interviewee highlighted Germany's humble approach and attitude to humanitarian digitalisation as a strength to be further developed. The key lies in Germany's willingness to learn and strategically leverage its limited resources. In this sense, Germany is considered an honest and neutral broker with the potential to champion a principled, humanitarian approach in tech politics.

The specific contours of GFFO's strategy to deal with digital technologies remain unclear

Yet, the specific contours of GFFO's strategy to deal with digital technologies remain unclear at present. Thus far, there is no available information regarding whether data and digitalisation will be integrated across programmes, with an emphasis on creating digital public goods[4] based on common standards and principled governance frameworks serving the broader humanitarian system, or kept as a standalone activity, focusing on siloed innovation and technology initiatives that serve few, selected humanitarian stakeholders only. For instance, the World Food Programme's (WFP) Innovation Accelerator, based in Germany and often highlighted as one of the country's flagship projects, plays an important role in innovating new technologies for selected stakeholders. However, its linkages to the broader German humanitarian community are limited, and its contributions to creating digital public goods available to diverse humanitarian users are minimal.

Interviewees have underscored such risk associated with investing in isolated projects and funding *pilots after pilots* without achieving any system-wide learning and impacts. They advocate for the embedding of digital approaches across programmes in a principled and structured manner, arguing that this approach would benefit a greater number of stakeholders, if not the entire system. Thus far, no other donor has addressed the digital transformation of the humanitarian system as a cross-cutting issue that needs to be operationalised across functions, organisations, and systems. If Germany were to adopt this comprehensive approach, it would undoubtedly influence the debate and approach to digitally transforming the humanitarian system.

Germany's constrained digital capacities must be noted and addressed through clearly defining Germany's

areas of interest and responsibility and strategic investment in relevant digital capacities and skillsets while pushing for shared responsibilities and collaborating with likeminded donors. This proactive approach would create trust and allow partners to respond to expected requirements. As one of the interviewees stated: "Germany could be a strong ally of humanitarian action if honest about it. There is no need to splash funds into the system. It's more about willingness to listen, understand and engage. This would allow them to keep pushing for boundaries and identify where they can have an impact."

The operational level

The lack of strategic digital capacity at the policy level is similarly reflected at the operational level. Anecdotal evidence suggests that the digital transformation of German NGOs is progressing more slowly compared to international peers (Düchting 2023a; 2022). There is no national forum to discuss normative and practical digital aspects, leading to important matters being primarily addressed in bilateral discussions between organisations or within smaller networks, as one of the interviewees stated. While the few initiatives and workshops organised on specific topics are generally well-received by the German audience[5], there is limited awareness of existing international guidance, such as the IASC Data Responsibility Guidance (2023) and the HDTI Principled Framework for Responsible Data Sharing between Humanitarian Organisations and Donors (2023). These frameworks could serve as good examples to follow or operationalise in the context of German humanitarian action.

In addition, German humanitarian actors are rarely represented at international fora where various digital matters are discussed (e.g., CDAC Network, IASC, ICRC Symposium[6], NetHope, etc.). Internationally, German

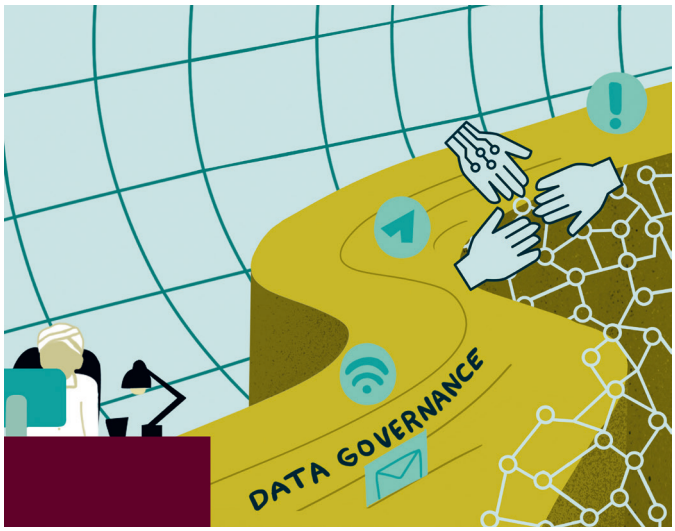


Illustration 1: German proposal templates and regulations primarily focus on potential data protection breaches, long-term data governance structures are not suggested.

NGOs are perceived as very risk-averse and conservative when it comes to technology, which is often restricted by European and German data protection regimes. Preliminary research indicated that German NGOs feel donor pressure to digitalise organisational processes while complying with strong data protection regulations. As a result, most NGOs focus on digital innovations and data protection, with initiatives typically being project-based, reliant on earmarked funding, and not integrated across programmes, departments, and functions. Principled approaches are deemed less relevant. The pressure to digit(al)ise further limits their ability to initiate long-term change and introduce overarching governance models and agile, cross-functional ways of working. The lack of digital capacity alongside resource and time constraints hinder inclusive design processes for introducing sustainable innovation and bridging humanitarian and development programmes through technology. Even if German humanitarian NGOs decide to strategically increase their digital footprint, they would need to contend with national barriers, as Germany's key donors, GFFO and BMZ, lack relevant digital capacities for strategic decision-making (Düchting 2023a; VENRO 2019a).

German humanitarian actors are rarely represented at international fora where various digital matters are discussed

When engaging in the innovation of new digital technologies, most humanitarian actors collaborate with private tech companies that are often unfamiliar with the humanitarian system. These collaborations often adhere to economic efficiency concepts such as productivity with quantitative indicators which are difficult to apply – and not necessarily relevant – to a humanitarian context. The humanitarian context follows its own logic with matrixes based on human needs, local realities, context-specific approaches, and solutions. One of the interviewees called this effect a zero-sum game. Notwithstanding the need for improved partnerships between humanitarian actors and the private sector for sharing knowledge and expertise, technologies need to be applied to humanitarian specificities and not the other way around.

In addition to this mismatch between humanitarian and economic efficiency concepts, there is a misalignment between existing policies, guidance, and operational realities. For example, data protection is often viewed as a low-hanging fruit that is relatively easy to request in grant proposals and document in project reports. In practice, however, it is difficult to implement, especially in times of humanitarian crisis. Time and resource constraints as well as the lack of digital literacy and digital capacity pose massive challenges to the operationalisation of data protection on the ground, raising protection and security risks for affected people and aid recipients. Training opportunities are limited and are usually not

Data protection is often viewed as a low-hanging fruit, but in practice it is difficult to implement

adequately funded. Only large organisations, such as UN Agencies and a few international NGOs, can afford to invest in secure data systems that are integrated across programmes. Others still rely on low-tech solutions with limited risk mitigation measures in place. Furthermore, diverse organisational and national frameworks put additional risks to data sharing between organisations, often necessitating the re-registration of aid recipients (Calp Network 2023; Worthington and Düchting 2023).

German proposal templates and regulations primarily focus on potential data protection breaches and implications from the grant-seekers' perspective. This includes the application of basic principles of data protection (e.g., data processing principles, legal basis), and secure and responsible data sharing. However, there is no consideration of people-driven aspects that might arise from Data Protection Impact Assessments (DPIA)[7] or similar evaluations. Germany's principled approach and the imperative of *doing no digital harm* are not embedded across programme criteria, which typically seek contextual information, risk assumptions or risk mitigation measures. If not for data protection reasons, there is no specific mention of analysing the use of digital technologies. Aspects like user-centric design and digital inclusion, digital participation and accountability or long-term data governance structures are not suggested. The tendency to fund pilots after pilots bear a missed opportunity for digital public goods that could be used by everyone and contribute to sector-wide learning.

Among the donors analysed for this paper, DG ECHO appears to be the only one going beyond mere data protection. DG ECHO supports risk assessments like DPIAs and actively requests risk mitigation measures related to digital technologies, applying a *doing no digital harm approach* (The Engine Room et al. 2023). According to one interviewee, DG ECHO has also been considering using the updated IASC Data Responsibility Guidance (2023) as a reference point for its partners. While this approach may not fully integrate digital technologies across humanitarian programming, it sets an example by going beyond mere compliance with data protection regulations predominantly implemented at headquarters level. The protection of affected people and their data, however, is integral to humanitarian action and largely operationalised by humanitarian actors operating on the ground.

Is Germany's humanitarian action digit(al)ised or being digitally transformed?

While **digitisation** refers to the process of converting information and documents from analogue to digital formats (e.g., copy pasting paper spreadsheets into MS Excel or any other digital application), **digitalisation** includes the integration of digital technologies into existing business processes (e.g., introducing a project management platform with finance, planning, and reporting functions). **Digital transformation,** however, is about embedding digital technologies across areas and functions (see Düchting 2023a). Digitally transforming German humanitarian action would require a critical examination of the current operating model and systems guardrails, integrating cross-system standards, and applying a principled approach to digital technologies while considering operational realities.

Concluding remarks

The absence of humanitarian specificities and capacities in Germany's national and international approaches to digital transformation raises concerns about Germany's capacity to respond to future digital trends and dynamics. While German humanitarian action is predominantly principled, this commitment does not always extend to the responsible use of of digital technologies. This prompts a fundamental question about Germany's digital capacity to actively shape the (digital) transformation of the humanitarian system while employing technology responsibly, transparently, and accountably. There is certainly room for improvement in digital humanitarian capacity at all levels – policy and operational ministerial decision-making and practical humanitarian action – and especially when wanting to prepare for future digital trends and dynamics that are discussed in the following chapter.

3.2 Looking outward: Digital trends to not shy away from

In summary, three predominant trends are shaping the current discourse and are expected to drive the digital agenda of the humanitarian system in future:

(1) the emergence of new and emerging digital technologies, including generative AI, influenced by
(2) the interplay of efficiency, effectiveness, and productivity, and impacted by
(3) sector-wide challenges related to data protection, privacy, and cybersecurity.

The following section primarily refers to the development of new and emerging digital technologies considering aspects of the efficiency-effectiveness-productivity triangle and discussing sector-wide challenges.

New and emerging digital technologies

According to OCHA's latest State of Open Humanitarian Data (2023), the year 2022 saw the highest levels of data availability ever reported, with 1.5 million practitioners in 233 countries and territories utilising the platform Humanitarian Data Exchange (HDX) platform for humanitarian programming and coordination (OCHA Centre for Humanitarian Data 2023, 4). New and emerging digital technologies facilitate this remarkable growth in data availability not only supporting complex data analyses for improved decision-making, increased efficiency and effectiveness but also holding the potential to initiate a much-needed paradigm shift from reactive to proactive and anticipatory humanitarian crisis response (Guzeviciute and Varghese 2023; Beduschi 2019). This shift aims at achieving better results with less but higher-quality data, meaningful participation and enhanced accountability. Predictive analytics and real-time communication tools allow humanitarian actors to respond more swiftly. Messaging apps and social media platforms help improve the participation of local actors and affected people. Geographic information systems (GIS), remote sensing and unmanned aerial vehicles (UAVs) expedite assessments and mapping of affected areas. Digital payments support improved cash services to aid recipients, while biometrics and digital IDs support the identification of individuals, preventing fraud and misuse of humanitarian aid, to name just a few of the emerging technologies (Düchting 2023a; 2023b; GSMA and UNHCR 2023; Komuhangi et al. 2023; OCHA Centre for Humanitarian Data 2023; OCHA 2021; ICRC and Brussels Privacy Hub 2020; United Nations 2020).

The year 2022 saw the highest levels of data availability ever reported

Artificial intelligence (AI), machine learning (ML), deep learning models and natural language processing (NLP) represent potentially the most crucial advancements that will progressively transform the humanitarian sector, with generative AI functioning as a "gamechanger" (Bergtora Sandvik 2023) for the humanitarian system. No other technology "this powerful has become so accessible, so widely, so quickly. [...] The amount of computation used to train the most powerful AI models has increased by a factor of ten every year for the last ten years. [...] Processing that once took weeks now happens in seconds. Models that can handle tens of trillions of parameters are coming in the next couple of years" (Bremmer and Suleyman 2023).

What is the difference between AI and machine learning?

The terms ML and AI are often used interchangeably, but they differ from a technical perspective in their sophistication and use cases. ML relies on a series of statistical methods or algorithms to train and analyse large amounts of data. On the other hand, AI primarily refers to research on how computer software mimics human intelligence, encompassing cognitive abilities such as problem-solving, data analysis, and language translation. AI is an umbrella term that includes subfields like ML for performing specific tasks, deep learning based on ML for more complex analyses, and NLP for rendering human communication. Generative AI, in turn, is not a new technology or subfield but rather refers to deep learning models that use large amounts of unlabelled data to generate statistically probable outputs. Use cases for generative AI include personalised medical treatments as well as text-based applications like ChatGPT or visual applications like Stable Diffusion (Deutscher Ethikrat 2023; Gray Widder, West, and Whittaker 2023; OCHA 2021).

Experts are drawing attention to the need for a new, global AI governance model that actively involves major technology companies, given their current dominance in the development of AI and their status as "independent, sovereign actors" (Bremmer and Suleyman 2023). Various initiatives have been launched to better understand and regulate complex AI systems, including the Hiroshima AI process during the G7 summit (May 2023), the EU's AI Act (June 2023), the UN's Resolution on New and Emerging Digital Technologies and Human Rights (July 2023), and the UN's Secretary-General's Roadmap on Digital Cooperation (June 2020), including the Global Digital Compact (Bremmer and Suleyman 2023; EDRi et al. 2023; Gray Widder, West, and Whittaker 2023; Meineck 2023; UN Human Rights Council 2023; United Nations 2020).

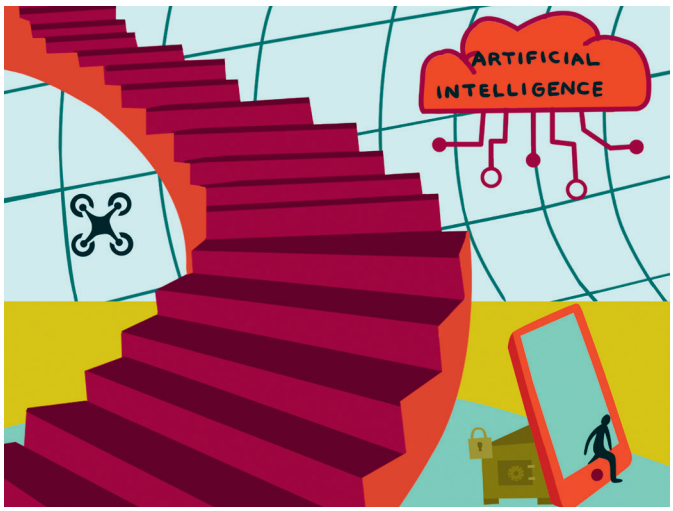


Illustration 2: Despite the significant opportunities arising from AI for new and innovative humanitarian approaches, there is limited understanding of the potential implications resulting from technological dependences.

Despite the significant opportunities arising from AI for new and innovative humanitarian approaches, there is limited understanding of the potential implications resulting from technological dependences. People often tend to unquestioningly follow suggested results when using technology and, notably AI, for decision-making, a phenomenon known as automation bias (Deutscher Ethikrat 2023). Additionally, there is a lack of representative humanitarian taxonomies that considers the contexts, capacities, and needs of affected people. For example, "AI tools don't work when data in a particular language is scarce" (Schacht 2023). This is particularly true for individuals in humanitarian crises who speak languages that are not well represented in AI training data and, thus, creating unwanted biases as humanitarian taxonomy is largely absent in AI systems owned by large tech companies. In turn, there is no humanitarian data space to train a neutral AI system, and system-wide support or guidance to assist humanitarian actors in navigating this new technology is not available. They find themselves in limbo, torn between waiting for such guidance and facing pressure to achieve greater impact with reduced funding by leveraging technology.

Another issue includes data accuracy and quality, which is usually difficult to meet in dynamic situations and times of crisis. Available (meta)data is often outdated, irrelevant, and may not adequately represent vulnerable minority groups. Furthermore, the absence of common data taxonomies hampers interoperability between organisations and across the humanitarian system. Hence, decision-making processes solely reliant on AI systems are often compromised, posing potential negative effects for affected people who might face discrimination. For instance, recent reports on national social protection schemes in the Middle East highlighted cases where individuals in need were wrongly excluded from national aid programmes that utilised algorithmic targeting tools funded by the World Bank. The decisions were based on outdated census data that failed to reflect the region's fluctuating levels of household income and consumption scores, which led to unintentionally excluding vulnerable households (Osseiran, Asher-Schapiro, and Farouk 2023; Stauffer 2023).

Data accuracy and quality is usually difficult to meet in dynamic situations and times of crisis

The anticipation for new and emerging technologies is high, but there is much at stake if they are not used wisely. Humanitarian experts are expressing concerns about the sector's inclination towards *technosolutionism.* Digital threats carry various risks for affected people and vulnerable individuals, encompassing but not limited to the risks further elaborated on below.

Protection risks resulting from doing digital harm

As previously mentioned, donors' pursuit of greater (cost-)efficiency in humanitarian spending compels humanitarian actors to innovate and to "maximise data [...] just in case it's needed in future" (Madianou 2021). The sheer volume, variety and velocity of available data, often referred to as big data, are frequently derived from data collection practices that, without the appropriate safeguards, may inadvertently amplify the vulnerability of individuals in need of humanitarian services, a phenomenon known as *surveillance humanitarianism* (Beduschi 2019). This data includes sensitive personal data such as biometrics and non-personal data about humanitarian contexts and needs.

To manage this sheer vast amount of data, humanitarian actors collaborate with technology companies to develop in-house systems or acquire commercial off-the-shelf solutions, which can range from high-tech to low-tech solutions depending on the organisation's capacities. Smaller, often local organisations still rely on low-tech solutions such as MS Excel or open-source solutions like KoboToolbox or ODK. In contrast, larger international organisations with sufficient resources and capabilities invest in building sophisticated data systems, including biometric-facilitated digital ID systems to enhance CVA. These systems aim to improve organisational processes for identifying and authenticating CVA recipients while seeking to reduce financial risks associated with unknown levels of aid diversion. In response to donor requests, they invest in costly systems to identify duplicates, often with limited evidence of risks arising from intentional or unintentional fraudulent behaviours by individuals (Worthington and Düchting 2023).

Local organisations rely on low-tech or open-source solutions

According to Calp's State of the World's Cash Report (2023), CVA will continue to grow and influence the normative and operational discussion surrounding data and digitalisation in the humanitarian sector. This influence extends to areas such as digital identity, digital payments, data responsibility, data protection and cybersecurity, all informed by digital literacy and the need for digital capacity to manage interoperable systems, and, to a limited extent, biometrics and blockchains (Calp Network 2023). Recent incidents in Afghanistan, Ethiopia, Yemen, and Myanmar, where biometrics were misused for various reasons, have led to a sector-wide reduction in the use of biometrics for humanitarian purposes (The Engine Room et al. 2023; Tsui, Johnson, and Lueks 2023). One interviewee confirmed this trend but emphasised that the positive shift towards reducing the usage of biometrics depends significantly on how organisations approach risks particularly financial and operational risks imposed by policy-makers and donors, often without adequately considering protection risks.

The global trend of manipulating facts and figures in the digital space in real-time poses a significant protection risk for humanitarian policy-makers, practitioners and affected people. The prevalence of misinformation, disinformation and hate speech (MDH), collectively known as fake news, has the potential to shape stereotypes and exacerbate violence. Instances, such as the Russia disinformation campaign against the White Helmets in Syria (2016-2017) and misinformation about ICRC's activities in Ukraine (2022), have demonstrated serious impacts on the reputation of humanitarian actors. Fake news can easily destabilise fragile contexts, erode trust and increase tension, impacting protection and social cohesion.

The global trend of manipulating facts and figures in the digital space in real-time poses a significant protection risk for humanitarian policy-makers, practitioners and affected people

Recent events in Israel and the Occupied Palestinian Territory vividly illustrate how information is deliberately used as a tool to manipulate emotion, influence narratives and fuel conflict. Motivated actors intentionally spread false or misleading information, rumours, or conspiracy theories through fake accounts and bots, or unintentionally through human channels. Limiting the use and abuse of social media has become increasingly difficult. While humanitarian actors recognise digital tools, including social media, as important communication channels (e.g., for community feedback mechanisms and appraisals), they often lack sufficient capacities, resources and responsibilities to effectively monitor and respond to MDH, leaving the real consequences for humanitarian action and affected people as a significant unknown (Devidal 2023; Düchting 2023a; GSMA and UNHCR 2023; OCHA 2023a; Lough 2022; Turcilo and Obrenovic 2020; Beduschi 2019).

In addition, there is lots of anecdotal evidence but limited robust research on the interactions and impacts of MDH on humanitarian mandates and principles. Current research predominantly focuses on understanding the effects of MDH on politics and elections with limited exploration of how policy-makers and decision-makers, as well as the general public, think and talk about humanitarian action.

Accountability risks caused by lack of transparency and power imbalances

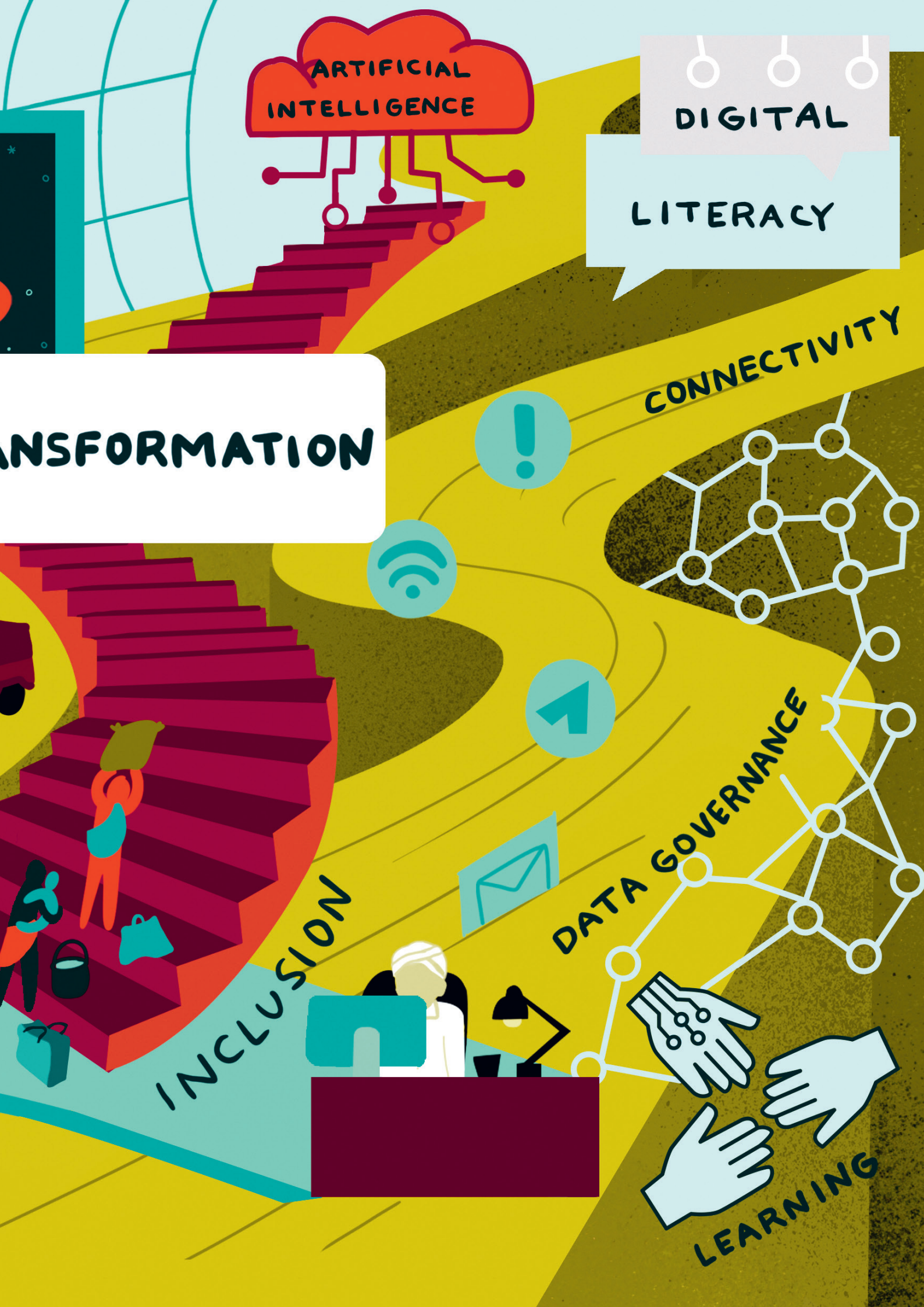
Transparency serves as the basis for social, legal, and technical accountability – summarised as digital accountability which is often compromised by power dynamics involving states, large tech companies, humanitarian actors and affected people. In the context of AI, transparency raises critical questions about how technology or automation is used by those in control, prompting a discussion about the users and subjects of AI and the resulting consequences (Deutscher Ethikrat 2023; Gray Widder, West, and Whittaker 2023; Whittaker 2023). The lack of transparency surrounding the development and use of new and emerging technologies by various stakeholders, including public administration, is increasingly becoming a focal point of concern across sectors, not to speak about discrimination and automation biases (AlgorithmWatch 2023; Bergtora Sandvik and Lidén 2023; Deutscher Bundestag 2023; Deutscher Ethikrat 2023).

Privacy risks resulting from increased privacy incidents, hacking and data leaks

The exponential growth of data and the increased use of digital technologies have contributed to a rising number of privacy incidents worldwide. Across various sectors, privacy breaches are becoming more frequent and sophisticated. Some notable publicly known humanitarian privacy incidents in recent years include data breaches and cyber threats reported by Mercy Corps, the International Federation of Red Cross and Red Crescent Societies (IFRC), and the World Health Organisation (WHO) at the onset of the Covid-19 pandemic in early 2020. Other incidents include the attempt to hack over 150 organisations partnering with USAID in mid-2021, cyber operations against servers of the UN in mid-2019 and early 2021, and a cyber operation against ICRC servers comprising sensitive data of more than 500,000 individuals in early 2022 (Cyber Peace Institute 2023; NetHope 2023; OCHA 2023a; World Economic Forum 2022; Parker 2020).

According to NetHope, non-profit organisations like NGOs are the "second most targeted [type of organisation] for cyber-attacks by nation-state actors" (NetHope 2023, 2). Despite claims of increasing prioritisation of cybersecurity, NetHope further reports that "just 64% of [its] Members have a structured Cybersecurity


DIGITAL ACCOUNTABILITY
TECH GEOPOLITICS
DIGITAL TRA
DOING NO DIGITAL HARM
CYBER SECURITY
SHARED RESPONSIBILITY
TRANSPARENCY


ARTIFICIAL INTELLIGENCE
DIGITAL
LITERACY
ANSFORMATION
CONNECTIVITY
DATA GOVERNANCE
INCLUSION
LEARNING

Previous pages – Illustration 3: Recognise the complexity and different layers of digital transformation in the humanitarian system

Program[me] with 22% saying that the quality of their program[me] has remained static as compared to previous year" and 65% are not confident in the way cybersecurity is managed (NetHope 2023, 5).

Is the humanitarian system digitally including or excluding local humanitarian actors?

Digital inclusion is the extent to which a partner or person can access, own and use digital technology safely and with dignity. It revolves around ensuring equitable access to technology and the capacity to leverage it for meaningful participation. **Digital exclusion** restricts access to technology, encompassing communication, information and digitally provided services. **Digitally inclusive humanitarian action** refers to humanitarian action delivered through digital channels while taking into account existing levels of digital inclusion, recognising barriers and exploring opportunities to integrate individuals into a digitally connected humanitarian ecosystem and society. Key barriers to digital inclusion and digitally inclusive humanitarian action comprise: Affordability, literacy and digital skills, charging and electricity, connectivity or network coverage, compliance with Know Your Customer (KYC) and regulatory requirements, social or access-related barriers, language considerations, and concerns regarding safety and security (Bin-Humam 2023; GSMA 2023).

According to NetHope (2023), humanitarian actors, particularly NGOs, suffer from low maturity, limited capacity and insufficient resources for cybersecurity. As one of the interviewees emphasised, "cybersecurity is a huge area with more research needed. It covers topics from phishing and scams at aid recipient levels to hacking of databases." The humanitarian system as a whole lacks comprehensive sector-wide processes to effectively address the increasing privacy incidents, such as those mentioned earlier. Currently, there are no established policies or strategies to fight cybercrime, let alone trustworthy frameworks for the voluntary disclosure of cyberattacks or collaborative efforts to formulate joint responses or prosecute the attackers. The overarching issue is exacerbated by a prevalent reluctance to openly discuss these challenges.

The humanitarian system as a whole lacks comprehensive sector-wide processes to effectively address the increasing privacy incidents

Meanwhile, most humanitarian actors depend on third-party technology providers. These providers offer subject-matter expertise but often lack or have limited expertise in humanitarian action and mandates (NetHope 2023; Hill 2022; World Economic Forum 2022; Marelli and Perrig 2020).

Design and exclusion risks resulting from lack of participation and representation

The integration of technology into the humanitarian system is intrinsically interlinked with the longstanding power imbalances of the humanitarian system. This connection is evident in the design and utilisation of new and emerging technologies by humanitarian actors. Typically, the development process is led by international humanitarian actors in collaboration with technology companies, offering limited to no opportunities for local actors – including humanitarian organisations, tech activists, and affected communities – to exert influence on these processes. The practices in digital innovation, often referred to as *digital or techno-colonialism,* pose a significant risk of perpetuating colonial relationships of dependency and inequality amongst humanitarian actors (Beduschi 2019; Madianou 2019)

An often overlooked dimension of digital exclusion involves the quality of data

An often overlooked dimension of digital exclusion involves the quality of data – specifically, the accuracy, representativeness, and timeliness of data. In dynamic humanitarian crises and conflict, access to high-quality data is typically scarce. Consequently, data systems often rely on poor data that is often outdated, irrelevant or overlooks minority groups (e.g., people with disabilities, old persons, indigenous peoples).

Concluding remarks

The increasing relevance of AI is undeniable, yet the humanitarian sector seems to be lagging in considering AI on a large and scalable level. One significant gap is the absence of a comprehensive ethical framework dictating when and how AI should be applied in humanitarian action, particularly in decision-making processes or setting-up neutral spaces or data space to train AI with neutral, humanitarian data. Currently, there is a lack of established programmes and legal regulations to mitigate diverse risks. A pressing example is the absence of clear processes for approving and deciding on AI-generated grant proposals or project evaluations. At this point in writing, there is no governance system or common approach to abide tech companies to humanitarian principles or humanitarian actors to use digital technologies in a responsible, principled manner.

Preparing for a future digital humanitarian ecosystem

As outlined, experts anticipate new and emerging technologies, particularly generative AI, to massively impact and change the way we work and interpret the world, with both positive and negative implications. At the same time, it is important to recognise that people play a significant role in influencing technology development and its usage. To keep up with the *exponential pace* of new and emerging technologies, policy-makers and practitioners need to be mindful and acknowledge the unknowns. Even experts themselves admit that they do not fully understand all the nuances of technological changes. The landscape of new AI developments remains largely known only to a select few leading technology companies and represents a snapshot in time (Bremmer and Suleyman 2023; Deutscher Ethikrat 2023; Gray Widder, West, and Whittaker 2023; Beduschi 2019).

At the same time, shrinking humanitarian budgets, and shifting policies and priorities push humanitarian actors to be more efficient and innovative, leveraging data and digitalisation. There is an increasing abundance of guidance available to help decision-makers and practitioners navigate the complex digital humanitarian ecosystem[8]. Interviewees, however, reported that most of the existing guidance does not properly trickle down and reflect operational realities. Despite existing frameworks (see Humanitarian Data and Trust Initiative 2023), donors still request humanitarian organisations share sensitive data for non-related purposes (Cassard, Campo, and Belina 2023; Fast 2022; Westphal and Meier 2020).

Another illustrative example is the tendency to invest in *pilots after pilots* without gaining any system-wide or cross-sectoral traction and learning (Düchting 2023a; Komuhangi et al. 2023). "The hype generated by innovation in humanitarian settings [rather] translates into heightened visibility and interest in new products and services which is particularly attractive for companies seeking branding opportunities" (Madianou 2021).

Recognising the complexity and different layers of digital transformation, donors have a tendency to focus on data protection alone. Interviewees suggested going beyond data protection compliance in grant proposals, reporting, and auditing. While data protection is important, it needs to be practically operationalised with partners and affected people, respecting local contexts and responding to local realities such as the level of digital literacy and national legislation.

Donors have a tendency to focus on data protection alone

Responsible grant and project management is a matter of understanding the dynamics, context, key challenges, potential implications and impacts when using digital technologies. "Donors have a responsibility to invest in responsible technology and data across the nexus", as one interviewee stated. However, the overarching goal should be to contribute to cross-sector approaches and foster sustainable, local solutions that build local ownership and agency, red lines and "manageable, practical implementation of data protection" (Bundesministerium für Digitales und Verkehr 2023) are needed.

The following section suggests risk mitigation measures in response to the previously identified risks.

Doing no digital harm to prevent and mitigate protection risks

The *do no harm* imperative requires humanitarian actors to refrain from causing further damage and suffering to affected people and the environment they inhabit. In today's age, many humanitarian actors apply the imperative to inform data management practices and digital accountability, aiming to act ethically by doing no digital harm (see IASC 2023; Freedom Online Coalition 2023; OCHA 2023b; 2019; Anderson, Brown, and Jean Isabella 2012).

Protecting affected people from digital harm is further linked to adhering to humanitarian principles, including humanity, impartiality, neutrality, and independence. "To address [...] digital dilemmas, it is important to remember that the fundamental principles that underpin humanitarian action [...] have been critical tools to confront challenges across time and space. They can and should continue to do so in the 'digital age', if humanitarians make a conscious effort to keep them at the centre of their strategies" (Devidal 2023). Technologies are usually not considered neutral; they are developed by humans with specific interests and purposes, often driven by financial motives. Applying humanitarian principles to a digital context necessitates a new discourse about humanitarian principles and how they influence cross-sector policies and operational realities, and even the broader landscape of tech geopolitics and inherent power dynamics impacting the digital humanitarian ecosystem. For example, humanitarian actors with sufficient capacities to invest in new technologies and the right capabilities to apply existing frameworks and (digitally) transform into agile organisations will certainly benefit. This stands in contrast to those with limited resources who may rely on low-tech solutions.

Applying humanitarian principles to a digital context necessitates a new discourse about humanitarian principles

This trend of embedding digital realities into the Right to Protection has already been reflected in the Signal Code, which identified five human rights that all people have

related to (digital) information during crisis (see Greenwood et al. 2017). Additionally, the recently agreed UN Resolution on New and Emerging Technologies (see UN Human Rights Council 2023), which, to no surprise considering the tech geopolitics between Eastern and Western tech companies, was criticised by China and India (Meineck 2023). The German Ethics Council further highlights that state institutions have an important role to play and "a fundamental legal obligation to meet high requirements in terms of transparency and comprehensibility when developing and [promoting] AI systems in order to ensure protection against discrimination and to be able to fulfil accountability obligations" (Deutscher Ethikrat 2023). Or as one of the interviewees phrased it: "Decision-makers should focus on the risks of exposing people to further harm through AI and digital technologies, and on the consequences of taking wrong decisions based on opaque algorithms and poor-quality datasets, instead of focusing on often illusionary productivity gains."

Improving transparency and inclusion to prevent exclusion risks and mitigate accountability issues

Ensuring digital accountability in humanitarian action is about transparency, participation, and inclusion. It is about holding organisations to account, taking account and being taken to account. In other words, humanitarian actors have an obligation to explain, justify, and take action to protect people from digital harm (Düchting 2023a; 2023b; Madianou 2021; Beduschi 2019).

To promote transparent data systems, especially AI systems, it is crucial for these systems to be "explainable" (Meineck 2023) and grounded in normative frameworks that empower individuals. While Europe's AI Act fosters such a people-driven approach, organisations continue to advocate for the protection of people's rights by ensuring accountability and public transparency through a) conducting impact assessment before the deployment of any technology (e.g., DPIAs) and b) meaningfully engaging civil society and affected people in the process (AlgorithmWatch 2023; EDRi et al. 2023). The theory, however, needs to be applied to operational realities. A practical challenge highlighted by one interviewee is the difficulty of conducting DPIAs on big tech companies which, apart from being a total no-go from a private sector perspective, would be too costly and resource-heavy for most humanitarian actors, including the UN. Additionally, there is a notable lack of enforceable legal accountability for digital technologies (Bergtora Sandvik and Lidén 2023). A response would require strong humanitarian diplomacy with tech companies.

Furthermore, the potential of automation, such as for anticipatory action and improved decision-making in humanitarian action (e.g., using AI for grant proposals), can only be fully understood when decision-makers and practitioners have a sound understanding of how these systems can be applied across diverse humanitarian contexts while avoiding negative impacts on affected people in specific contexts. Digital literacy, thus, remains a prerequisite for understanding the complexity of the digital humanitarian ecosystem and fostering increased transparency. It not only aids in prioritising future strategies and actions but also assists decision-makers in understanding what information is essential, both in terms of specific humanitarian contexts and the types of technology employed. For instance, decision-makers should be prepared for the prospect that project proposals might soon be written with the support of generative AI (Bergtora Sandvik 2023; Iyer 2023). While this presents a valuable opportunity for smaller organisations, it also necessitates a shift in understanding and potentially changing evaluation criteria "to focus more on technical knowledge, experience, and an understanding of the context that can't be sourced from the internet" (Bergtora Sandvik 2023).

Digital literacy remains a prerequisite for understanding the complexity of the digital humanitarian ecosystem

Applying human-centric principles for digital development can also foster more inclusive design (see 'Principles for Digital Development' n.d.). Additionally, incorporating linguistic accessibility tools holds the potential to contribute to more meaningful participation and accountability. Inclusive, multistakeholder governance models targeting decision-makers and technical staff from governments, state institutions, implementing organisations alongside diverse tech companies, scientists and researchers, civil society, and voices "with knowledge of, power over, or stake in [technology] outcomes" (Bremmer and Suleyman 2023) are also essential for more transparency and accountability. "Looking into the future, we know already today that the conversations around inclusion will have to be much more complex, taking into account the intersecting human identities and vulnerabilities. It is not just about having underrepresented voices at the table. To be just and effective, the future leadership will have to take braver steps moving towards collective leadership that

Data literacy is part of digital literacy. It refers to the ability to identify data sources, collect and organise data, understand, analyse, and interpret data, and present and communicate data in an understandable way, including data structures and data formats. It includes a basic understanding of the right to information, self-determination, and data protection [aka data subject rights]. [...] It supports the recognition of patterns, trends and interrelationships and helps make evidence-based decisions. Recognising uncertainties, biases, misinformation and disinformation is also part of data literacy (Bundesministerium für Digitales und Verkehr 2023, 32).

considers diverse sources of knowledge and creates an environment where decision-making power is shared" (Guzeviciute and Varghese 2023).

Ensuring security to prevent and mitigate privacy threats

Mitigating the growing phenomenon of cyber threats observed across all sectors requires increased efforts in developing data systems that adhere to privacy by design and by default principles. Approaching data breaches and strengthening law enforcement from a sector-wide perspective, in turn, requires trustful cooperation and reporting mechanisms based on a common normative framework for addressing the question of which actions should be meaningfully pursued by which actors and in which partnerships (Bendiek and Bund 2023; Weber 2023; Seo 2022; ICRC and Brussels Privacy Hub 2020).

Both the proactive approach of mitigating and the reactive response to privacy threats are scarcely, if at all, pronounced in the humanitarian sector. This scarcity further refers to ethical debates surrounding the attackers' intention, questioning whether they are targeting individual organisations for accessing donor budgets or sensitive personal information, or if their motivations are politically motivated against the humanitarian system as a whole.

Concluding remarks

The application of digital technologies in humanitarian crises cannot adhere to a one-size-fits-all approach. Humanitarian crises and conflicts remain highly context-specific and difficult to predict. While data and digitalisation have the potential to improve decision-making and response times, realising the benefits requires a deep understanding of the context. This involves knowing the opportunities, potential impacts, and implications before deciding on the type of innovation and technology to employ. To string the right balance of benefits over risks, proper analysis, scenario-planning and agile management for more efficient and effective quality programming and humanitarian action are required in German humanitarian action and beyond. Isolated pilots need to be avoided and digital public goods invested in instead.

Isolated pilots need to be avoided and digital public goods invested in instead

To future-proof the digital humanitarian ecosystem in Germany, it is imperative for humanitarian actors to stay aware of new and emerging technologies and be mindful of their opportunities, limitations, and implications. The potential threats, such as protection risks, violations of privacy or forms of systematic discrimination, must be considered when making data- and technology-related decisions. This process necessitates engaging in a public debate with civil society about humanitarian specificities in national policies, embedding technologies across humanitarian programmes, strengthening transparency and accountability by all stakeholders and, last but not least, introducing humanitarian techplomacy and following a principled approach to data and digitalisation.

4. From aspiration to reality: Potential actions for future-proofing Germany's humanitarian digital capacity

Germany's ambition to transition from the world's second-largest humanitarian payer to a "purposeful player" (Hövelmann and Südhoff 2023) needs to be reflected in the upcoming humanitarian strategy. The new strategy is a great opportunity to strengthen Germany's digital humanitarian capacity and foster a principled approach to digital technologies that is embedded across humanitarian programmes and has the potential to contribute to (digitally) transforming the humanitarian system. The recommendations below reflect a set of actions to strengthen Germany's digital humanitarian capacities at policy and operational levels. This refers to ministerial decision-makers at GFFO (policy level) in particular, and practitioners at German humanitarian NGOs (operational level).

Apply a principled approach for doing no digital harm

A principled approach, grounded in the principles of *doing no digital harm,* upholding human rights and adhering to humanitarian principles, is key for defining and managing the use of digital technologies from an ethical and people-centric perspective. This implies being problem-oriented, locally-driven and not solution-driven. It involves rephrasing digital innovation towards the improvement of rights and humanitarian principles (Hamilton 2023). As one of the interviewees stated, "we need less innovation focused on productivity, but a more principled approach, which takes vulnerabilities and human rights into account and focuses on positive impact for people. This requires changing the current humanitarian sector 'business model' and funding scheme, to create the right incentives and accountability frameworks". Humanitarian diplomacy and decision-making in a digital era need to consider operational realities while taking digital opportunities, limitations, and implications into account.

For ministerial decision-makers at policy level

- Reflect humanitarian considerations and humanitarian principles in digital strategies and policies at national and international levels.
- Define your principles, priorities, and guardrails taking ethical and people-centric considerations into account. Then advocate for this principled approach in national debates and cross-sector collaboration, and to inform funding allocations.
- Facilitate multi-stakeholder processes to analyse digital opportunities and risks from a principled perspective.
- Exercise caution in selecting technologies for investment. Request risk assessments such as DPIAs to better understand the specific humanitarian context, opportunities, limitations, and potential implications arising from technology.
- Avoid funding isolated flagship innovations. Prioritise investing in innovations that will work as a systemic lever or enabler. Promote digital public goods based on common data standards and principled governance frameworks.
- Develop case books for principled decision-making, taking a context-specific approach and fostering *doing no digital harm.*
- Do not request humanitarian practitioners to share sensitive data for unspecific or unrelated purposes.
- Redefine humanitarian diplomacy considering digital issues, including but not limited to digital weaponisation, disinformation campaigns, cyber-attacks and prosecution against humanitarian targets.
- Give humanitarians a voice by strengthening humanitarian diplomacy with tech companies and in tech geopolitics.
- Analyse opportunities for creating a humanitarian data space for training neutral AI system considering humanitarian taxonomies.
- Apply digital humanitarian diplomacy to influence tech geopolitics and social media regulations.
- Advocate for humanitarian principles and human rights with big tech companies.

For humanitarian decision-makers and practitioners at operational level

- Start with a human-related problem statement describing the humanitarian contexts and people's realities. Allow the problem statement, not *techno-solutionism,* to drive data and digital innovation.
- Do not reinvent the wheel. Instead, use existing frameworks and guidance, including but not limited to the IASC Guidance on Data Responsibility in Humanitarian Action (2023), and the UN Resolution on New and Emerging Technologies (2023).
- Consider digital rights and data access for local actors and affected people.
- Push back and stick to humanitarian principles when being asked to share sensitive data for unspecific or unrelated purposes. Do not compromise affected people's wellbeing and security.
- Be intentional about data sharing by limiting the sharing of disaggregated data but encouraging transparency about aggregated humanitarian outcome data.
- Apply the imperative of doing no digital harm across all humanitarian activities.

Build safe, secure and transparent data systems

It's all about people and their data. To better protect people's data and privacy, functioning data systems need to be built on solid, safe, secure, and transparent data systems with governance models that rely on sustainable organisational structures and are open to all types of humanitarian actors.

For ministerial decision-makers at policy level

- Set-up integrated data systems to track humanitarian funding allocating thematic sectors, alongside digital innovation and technologies.
- Track data sources and data flows to explain decision-making. However, be mindful that data cannot represent the full nuances of humanitarian realities and outcomes.
- Use AI to support, but not to replace, human decision-making. Consider potential automation biases. Remain cautious and evaluate all data sources and algorithms carefully for inherent biases, oppression, and inequality.
- Rethink evaluation strategies taking the option of AI-generated grant proposals and project evaluations into account. Detect (or reject) the use of AI. Ask partners to disclose the use of AI.
- Promote sector-wide and cross-sector processes, such as common data taxonomies and classification criteria, and proactively engage in the discussion about greater interoperability across the humanitarian system (e.g., through the donor cash forum).
- Allocate appropriate flexible and longer-term funding for inception phases, proof of concepts, software licences, regular security patches, change management, and human resources.
- Facilitate a national dialogue to transparently and responsibly manage upcoming cyber-attacks and data breaches at policy and operational levels.
- Do not compromise sensitive humanitarian data. Apply existing frameworks to inform safe and secure data sharing between donors and humanitarian organisations, and with relevant institutions at all levels (see Humanitarian Data and Trust Initiative 2023).
- Consider co-creating and exploring secure, humanitarian data ecosystems with like-minded donors and partners.

For humanitarian decision-makers and practitioners at operational level

- Invest in integrated data systems and data governance across functions and organisations.
- Decouple data governance from humanitarian programming.
- Apply existing security frameworks such as ISO, NIST, etc.
- Build agile and constructive working cultures that deal with errors and mistakes and encourage the reporting of any kind of data breach.
- Disclose cyberattacks and data breaches. Good systems exist to detect data breaches, not to hide them.
- Increase capacities and introduce responsibilities to monitor and respond to online fake news.
- Be transparent about algorithm use and the possible effects of such systems in humanitarian programming and decision-making (i.e., targeting, calculations).

Create digital capacity by building digital literacy

Digital capacity is built on digital literacy, and digital literacy is key to navigating a complex, digital humanitarian ecosystem. Digital literacy spans a spectrum, encompassing technological expert knowledge, general technical knowledge, and soft skills that facilitate cross-functional collaboration. To foster innovation and embrace new ways of working, future strategies must integrate data and digitalisation across programmes and workstreams. In the future, digital skills will be important for humanitarian leadership, encompassing all types of humanitarian profiles across various functions and programmes (Solferino Academy). Building digital capacity is essential for gaining a deeper understanding of ongoing developments, and making context- and user-centric decisions that lead to improved outcomes.

For decision-makers and practitioners at policy and operational levels

- Continue building and increasing digital literacy across functions and profiles.
- Diversify digital capacity by fostering cross-functional collaboration.
- Introduce new profiles and responsibilities.
- Invest in trainings and awareness raising, including learning and knowledge sharing across functions and sectors.
- Support inter-sectoral collaboration and research to advance knowledge and learning.
- Invest in research to better understand humanitarian cyber threats and migitation measures, as well as impacts of MDH on humanitarian mandates and perception.

Design inclusively and responsibly

Human-centric, inclusive design principles contribute to the development of user-friendly and context-specific technologies and data systems. For example, the Principles for Digital Development unifies existing ICT development principles and is used as a code of conduct for planning and implementing digital projects across sectors (VENRO 2019b; 'Principles for Digital Development' n.d.). There is no need to reinvent the wheel.

For humanitarian decision-makers and practitioners at operational level

- Apply existing principles and standards when designing new technologies (e.g., Principles for Digital Development).
- Apply a rigorous approach to define a people-centric problem statement.
- Consider non-humanitarian pathways to innovation (e.g., Theories of Change, Proof of Concept) while being mindful of context-specificities.
- Co-create with local partners and tech activists, affected people and individuals.
- Involve people with different needs, like persons with disabilities, and young and older persons.
- Involve diverse representation from different groups a) impacted by technology and b) depending on technology in the design process (e.g., staff members, users, constituents, affected people, individuals, etc.).
- Offer diverse solutions to respond to affected people's preferences. Empower local partners and affected people to use digital applications in their own language while being mindful of non-digital literate people who might not be familiar with digital jargon.
- Invest in impact evaluations. Share the knowledge across and beyond the humanitarian sector.

There is no single stakeholder responsible. Responsibilities are shared between humanitarian actors, decision-makers, practitioners, tech companies, and many others. To reflect medium- and long-term impacts of the use of technology, quantitative as well as qualitative accountability mechanisms across different levels and sectors are required. In times of new technologies "channelling funding and decision-making power toward human-run humanitarian accountability mechanisms is more important than ever" (Bergtora Sandvik and Lidén 2023). Policies need to be operational, translated and linked to all types of humanitarian actors whether they are small, large, international or local.

For ministerial decision-makers at policy level

- Invest in digital infrastructure and connectivity to contribute to closing the digital divide across regions and communities.
- Apply a principled approach when funding new (digital) innovation.
- Allocate funding for the operationalisation of data protection and other standards on the ground. Funding needs to be inclusive of comprehensive and hidden expenses (e.g., privacy by design and default, trainings, security updates).
- Adjust accountability mechanisms and integrate digital audit approaches. Define guardrails and red lines for the use of technologies in specific contexts (e.g., casebooks, field missions and spot-checks).
- Move away from pure *tick box* exercises for compliance purposes. Focus on qualitative information by raising questions around:
  - The short-medium-long-term purpose and governance of the technology: Why was the technology chosen? What problem does the technology solve and how? What does the data governance system look like? Is the data accurate and regularly updated? How is data stored? Who is involved? What type of data protection and security actions are in place? What is the context in which the technology is used? Are there any red lines to consider?
  - The underlying decision-making and design processes: Why and how was the technology chosen? Who was involved and decided on the technology? Were inclusive design principles used? How were affected people involved in the design and development of the technology? What processes preceded the development/use of the technology (e.g., human-centric design, risk assessments like data privacy impact assessments (DPIAs))? Which business processes are affected and how does the technology influence/impact these processes? How are/were local actors involved and what influence/impact does the technology have on their processes?
  - The impact on local processes: What is the impact of the technology? How do local actors use the technology or access the data?
  - The data rights of affected people: Can affected people access, update and/or withdraw their data?
  - How does the technology impact local business processes? How do local actors access the data?

Engage across sectors and systems

The humanitarian digital ecosystem is inherently cross-sectoral. Affected individuals have touch points with many stakeholders across various sectors, extending beyond humanitarian entities alone. For example, innovation and data are intricately connected to national social protection schemes, development cooperation and migration (e.g., ID systems, CVA and social safety nets), as well as technology, environment, and climate considerations (e.g., server and computing power). Recognising the distinct characteristics of humanitarian action, each sector or data system needs to be considered from an ethical and operational perspective.

For decision-makers and practitioners at policy and operational levels

- Apply a principled approach reflecting humanitarian specificities and humanitarian principles in data and digitalisation policies and strategies across sectors.
- Get actively involved and shape international discussions, including but not limited to the global digital compact and the upcoming UN Secretary-General's Summit of the Future in September 2024.
- Protect the humanitarian space by increasing independence from tech companies and differentiating various types of humanitarian action, i.e., what requires a political or operational response.
- Partner with like-minded decision-makers and policy-makers to move towards a pooled approach and work towards digital public goods.

Finally, emphasise a systemic approach when designing and deploying digital technologies. New and emerging technologies will inevitably shape the future humanitarian system and should not be considered in isolation. German humanitarian actors at policy and operational levels must build digital capacities to avoid inefficiencies and to play a more active role in determining how technologies are employed in the humanitarian system and to foster the (digital) transformation of the system.

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Annexes

Interview guide

The following guiding questions were used during the semi-structured expert interviews:

- How does the digital transformation of the humanitarian system look like today? What are the drivers? What are the trends of tomorrow?
- What is Germany's political/operational role in the digital transformation process of the humanitarian system? How do German humanitarian actors influence international digitalisation debates? What are their strengths? What are their weaknesses?
- What are the expectations towards Germany's role in digitally transforming the humanitarian system, including potential actions to achieve these expectations?
- What role w/should Germany play in future? What is needed to operationalise this vision? From a policy/operational perspective, what w/should the new German humanitarian strategy realistically look at in terms of digital transformation?

List of experts and organisations interviewed

With thanks to all independent humanitarian experts and practitioners affiliated to the following organisations for sharing their insights with me:

AccessNow defends and extends the digital rights of people and communities at risk. By combining direct technical support, strategic advocacy, grassroots grant-making, and convenings, AccessNow fights for human rights in the digital age. AccessNow is made up of a diverse community of more than 130 team members working in centres of political power, tech innovation, and civic action around the world. https://www.accessnow.org/

The **CALP Network** is a dynamic global network of over 90 organisations engaged in the critical areas of policy, practice and research in humanitarian cash and voucher assistance (CVA) and financial assistance more broadly. Collectively, CALP members deliver the vast majority of humanitarian CVA worldwide. https://www.calpnetwork.org/

Established in 1863, the **International Committee of the Red Cross (ICRC)** operates worldwide, helping people affected by conflict and armed violence and promoting the laws that protect victims of war. An independent and neutral organisation, its mandate stems essentially from the Geneva Conventions of 1949. https://www.icrc.org/en/

Network for Empowered Aid Response (NEAR) is a movement of local and national civil society organisations from the Global South with a bold ambition – to reshape the top-down humanitarian and development aid system to one that is locally driven and owned. https://www.near.ngo/

Verband Entwicklungspolitik und Humanitäre Hilfe - VENRO is the umbrella organisation of development and humanitarian non-governmental organisations (NGOs) in Germany. The association was founded in 1995 and consists of around 140 organisations. https://venro.org/english/

Endnotes

1 The EU follows a strong human-centric approach to technological development reflected in relevant policies and legislations. GDPR, for example, highlights data subject rights which give individuals the right to access, rectify, erase, and object the processing of their personal data.

2 Ukraine's digital environment had prompted many actors to build on the existing digital infrastructure and pushing for the integration of humanitarian data into the national social protection scheme. Diia was introduced in early 2023. In general, there are numerous challenges to overcome when sharing data with government social protection programmes, including ethical concerns, priority settings, abiding to humanitarian principles, financial responsibility, etc. (Worthington and Düchting 2023; Calp Network 2022). The integration or interoperability with national social protection platform may be more sustainable but, when following a principled approach, not feasible in all humanitarian contexts.

3 According to Issa et al. (2022), the figures are based on OCHA Financial Tracking System (FTS).

4 The UN Roadmap for Digital Cooperation considers digital public goods as "essential in unlocking the full potential of digital technologies and data to attain the SDGs, in particular for low- and middle-income countries" (United Nations 2020, 6).

5 For example, VENRO had organised a workshop on the use of generative AI in developmental and humanitarian civil society projects earlier in 2023. CHA also facilitated several workshops on digital accountability in 2022/23.

6 In November 2022, the International Committee of the Red Cross (ICRC) organised a Symposium on Cybersecurity and Data Protection in Humanitarian Action to discuss digital risks amongst experts from the public, private and humanitarian sectors (Düchting 2022). The next event this type will follow in January 2024.

7 A DPIA identifies and evaluates the "risks to personal data arising from a project, policy, programme or other initiatives" (ICRC and Brussels Privacy Hub 2020, 13). The assessment considers protection risks from different perspectives, including those of affected people, and suggests relevant risk mitigation measures.

8 Guidance includes the IASC Operational Guidance on Data Responsibility in Humanitarian Action, 2023; OCHA Guidance Note on Data Responsibility and Accountability to Affected People in Humanitarian Action, 2023; USAID & IDRC Donor Principles for Human Rights in the Digital Age, 2023.

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