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## DIGITAL TECHNOLOGIES IN THE GLOBAL HUMANITARIAN SECTOR: A CASE STUDY OF UKRAINE



## ABSTRACT

A critical approach regarding the potential for side effects associated with the use of digital technologies in the humanitarian sector as well as identifying potential risk factors arising from their *experimental* or *hasty* and unstructured use of the technologies in crises, finds real justification and is recommended by the humanitarian community, and notably the United Nations Office for the Coordination of Humanitarian Affairs. Based on a literature review, reports containing data on humanitarian sector, as well as interviews with humanitarian practitioners, the phenomena occurring at the interface between humanitarian space and new technologies and their associated risks were analysed. The paper identifies critical, unresolved gaps in the legal, management and ethical frameworks of digital humanitarianism, among others accountability issues that have traditionally regulated the professional conduct of operations in this sector. It also presents the phenomena emerging in the context of response to the crisis situation in Ukraine. The Ukrainian case study, by bringing new digital experiences to the sector, will probably contribute to enriching the *learning* process of humanitarian agencies for similar emergencies in the future.

**KEYWORDS:** *digital, aid, humanitarian technologies, risk, Ukraine*

## INTRODUCTION

Among the management techniques in the humanitarian sector, intrinsically aiming at institutional improvements and taking the form of rationalisation processes, digital technologies and related forms of data production, storage, processing, and sharing play a key role. Today, new technologies are generally seen as a transformative tool changing the foundations of humanitarian actions (Sandvik, 2016). Based on a literature review, reports containing data on humanitarian sector, as well as the author's interviews with humanitarian aid experts, the paper analyses phenomena occurring at the interface of the humanitarian space and new technologies and their associated risks. It identifies critical, unresolved gaps in the legal, management and ethical frameworks of digital humanitarianism, among others accountability issues that have traditionally regulated the professional conduct of operations in this sector. It also presents the phenomena emerging in the context of the response to the crisis situation in Ukraine and provides findings that can contribute to further studies on the issue.

Hailed as a symbol of global moral progress and the humanisation of the world (Barnett, 2013), humanitarian activity has been heavily influenced by the so-called *digital turn* over the past two decades. Alongside the classic dunanist paradigm, meaning the life-saving aid and protection provided at its historical origins by the International Committee of the Red Cross in conflict situations, new forms of *humanitarianism* have emerged referred to as *new humanitarianism* (Fox, 2001), *humanitarianism 2.0* (World Economic Forum, 2017), *digital or cyber humanitarianism* otherwise known as *cyber-humanitarianism* (Sandvik, 2016; Duffield, 2016, 2019), *posthumanitarianism* (Duffield, 2018), *surveillance humanitarianism* (Latonero, 2019) or *anticipatory humanitarianism* (Homberg et al., 2020). ICT-enabled humanitarian actions are also often defined as *humanitarian innovation* (Betts and Bloom, 2014; Raymond and Scarnecchia, 2018; Müller, 2019).

These terms imply that digital technology has become an important tool and central management technique in the global aid sector, definitely changing the conditions under which it operates, and at the same time point to the fact that humanitarian action is increasingly dependent on new digital technologies and data sources (Duffield, 2013). According to one influential definition, *cyber humanitarianism is the implementation of social and institutional networks, technologies and practices that enable large, unlimited numbers of people to collaborate remotely and terrestrially in managing humanitarian aid through digital technologies* (Burns 2015, p. 477; Homberg et al., 2020).

The response to the 2010 Haiti earthquake, when volunteers called *crowd-mappers* used smartphones and social media to collect and communicate information about the situation on the ground, was a breakthrough in the evolution of *digital humanitarianism* (Meier, 2011; 2015). The COVID-19 pandemic, that came a decade later, accelerated the trend of using digital technologies in assistance interventions. Today, almost every aspect of humanitarian assistance across the disaster management cycle, from preparedness to recovery, such as identification of needs and risks, emergency response design, remote management, and delivery of humanitarian services in operational environments (e.g. refugee registration, food aid, vaccination programmes, etc.) or monitoring of operations, is to some extent influenced by ICTs. A large-scale use by humanitarian entities – both international multilateral organisations

and local start-ups – of mobile devices, mobile phone technologies, and internet platforms, including social media and mapping applications, as well as remote sensing platforms, satellites and drones, biometric systems, programming, machine learning and artificial intelligence, digital data collection or digital payments seems to be the beginning of a transformed, technologically enhanced humanitarian system. This foreshadows the delivery of more relevant and effective aid than before, in a timely and cost-effective manner (Willitts-King et al., 2019; OCHA, 2021).

Critics of this trend, including Duffield (2013; 2016; 2019), emphasise that despite the benefits of technological innovation, the unreflective adoption of the benefits of cyber-humanitarianism, including *design principles* and computational algorithms by humanitarian agencies, should be replaced by critical thinking and attempts to understand the impact of technological innovation on the sector. They point out that the digital turn has introduced new players and new interests into the humanitarian arena, that as part of the narrative of improving aid efficiency, objectivity, and transparency, may overlook systemic issues and limit the rights of beneficiaries (Smith, 2018; Willitts-King et al., 2019).

## **DEFICIENCIES IN THE DATA COLLECTION PROCESS AND EARLY-STAGE INNOVATIONS**

The qualities of ICTs may pose challenges and risks, of which the dominant risk factors are data protection and privacy, i.e. ensuring that the data of humanitarian recipients is not misused and does not put them at risk. Such experiences are of particular relevance because of the phenomenon of so-called *function creep* or *gradual function expansion*, in which data collected by a technological system is used for purposes quite different from those originally intended (Koops, 2021). In the absence of adequate safeguards, a process that may begin as a functional data collection as part of general refugee registration, for example, can relatively easily turn into the creation of a fundamental database used in an unauthorised way (Rahman, 2018).

The quality of the data, how it is collected, analysed and disseminated are also important risk factors in this area (Rejali and Heiniger, 2020).

Analyses of large and open data sets not only entail privacy risks, but may also result in the construction of biased, non-objective results. This is in part due to the in-built mechanisms for integration and reinforcement of the technology creators' value systems, culture, and views (including prejudices) which permeate the design and development of artificial intelligence systems (OCHA, 2021). Lack of objectivity and bias also results in imperfections in the data collection process.

For example, artificial intelligence systems that focus on analysing historical data in predictive systems may fail to take into account variables such as changes in human behaviour and the environment, which can reproduce errors and inaccuracies and perpetuate historical inequalities and biases, thus providing incomplete or inaccurate predictions. An example of deficiencies in this process is epidemiological risk studies, which often lack key demographic information such as age and gender. Furthermore, the data covers only a limited part of the population, excluding marginalised groups such as infants, illiterate people, the elderly, indigenous communities and people with disabilities, which translates into under-representation. The problem of under-representation also applies to some of the developing countries where digital access is not widespread or there are low levels of digital literacy.

The use of data-driven technologies by humanitarian entities is still an emerging practice characterised by the use of early-stage innovations and requiring further development and validation. In the aid sector, the use of big data, machine learning and artificial intelligence – whether in the form of machine learning generating predictive models with probabilistic reasoning or in the form of expert systems replicating human decision rules – is at an exploratory stage (Paul et al., 2018) and represents a new form of humanitarian experiments (Duffield, 2019). In contemporary humanitarian settings, the proliferation of pilot schemes or testing the properties of new technologies takes place in countries where their management may be less regulated or codified, whereas in Western countries such practices would be subject to strict supervision (Jacobsen and Fast, 2019).

## THE HUMANITARIAN AND THE PRIVATE SECTOR

It is also not easy to find a balance between the humanitarian sector and its technological connections with the private sector, which is a major driver of innovation. The activity of commercial enterprises, corporate philanthropists, mainly technology companies in the humanitarian space, furnishing it with free or subsidised technology to meet operational needs in fragile emergencies, provides an excellent branding and public relations opportunity for them along with further benefits such as access to new markets, access to data and opportunities to pilot and standardise new solutions (Madianou, 2019). These entities, having limited experience and knowledge of the objectives of the humanitarian aid sector, pursue their own financial goals *commodifying* data and using it *for profit* according to the logic of a neoliberal market that is not interested in actions to protect the rights of beneficiaries (Dijkzeul and Sandvik, 2019).

Moreover, the use of corporate social responsibility initiatives and forms of public-private partnerships with aid providers can also be aimed at improving the reputation of companies and diverting public attention from corporate misbehaviour, ethical misconduct and latent motives (e.g. related to data processing). Such questionable practices, in particular attributed to surveillance companies, have already become known as *bluewashing* or *aidwashing* (Martin, 2023). In addition, researchers point out that apparently altruistic technological interventions in humanitarian contexts often go hand in hand with new mechanisms of surveillance and control, which fits in with the idea of treating humanitarian management as a distinct form of power that blurs the line between care and control, between emancipation and domination (Müller, 2019).

The direction of inquiry so far goes beyond the idea of technology as a *tool* that can simply make humanitarian action more effective. The advantages of ICTs in the humanitarian sector come with complex challenges and risks, including growing evidence of tangible harm being done in certain contexts by unnecessary recourse to technology and exacerbating techno-solutionism. For example, research has shown that focusing on analysing big data to predict Ebola outbreaks in West Africa has not always been as effective as investing in the appropriate public health and social infrastructure could have been (Wamsley and Chin-Yee, 2021). These threats – as recommended

by the United Nations Office for the Coordination of Humanitarian Affairs (OCHA, 2021) – should be identified and neutralised on an ongoing basis to ensure that technology does not harm, leaves no one behind, and protects the lives and dignity of those it is intended to serve.

## THE UKRAINIAN CASE STUDY

As there are many indications that in response to the Ukrainian crisis, which emerged as a result of the Russian invasion on February 24, 2022, a more *digital approach* was adopted than in the case of other international crisis responses, it is worth looking at the circumstances of implementing innovations in Ukraine and the associated risk factors. Both typical and unprecedented phenomena can be found. The large-scale use of new technologies by numerous international organizations and proven partnerships helping those in need in Ukraine has contributed to improving the efficiency of aid, e.g. by automating targeting processes, i.e. introducing online self-registration to apply for financial assistance – as in the case of the United Nations Children’s Fund (UNICEF) and the Norwegian Refugee Council (NRC), cooperating with the United States Agency for International Development (USAID), the Danish government, WhatsApp and Twilio, the International Committee of the Red Cross (ICRC) or improving data for a needs analysis and information on provided services, including in hard-to-reach locations, as in the case of Premis’ mobile application that collects information in cooperation with the World Health Organization (WHO). Chatbots, QR codes, augmented reality, drones, blockchain technology have become widely used as well as communication via multiple social media channels. The latter democratised humanitarian action because of the ability to transfer information without connecting to the formal humanitarian system (Bandura and Staguhn, 2023; Polish Red Cross Interview, 2023).

The significantly higher level of digitisation of humanitarian programmes and the use of a range of digital adaptations in a way not seen before on this scale in humanitarian action is a result of the specific context of operations in Ukraine (Polish Red Cross Interview, 2023), particularly the high level of digital skills and access to such technologies. Ukraine’s information and communications

technology industry was hugely successful before the war, and was described as the *emerging tiger of Europe*. Employing more than 200,000 highly skilled workers, the sector generated 4 per cent of the country's gross domestic product (GDP). Ukrainian IT outsourcing companies typically have specialist skills in cloud solutions, artificial intelligence and big data. With 4,000 local companies and more than 100 global companies such as Samsung, Ericsson, Microsoft, and Google, Ukraine was one of the world's largest exporters of information technology (IT) services (Bandura and Staguhn, 2023).

This kind of situation is largely the result of the government's policies i.e. primarily the reform initiated in 2019 to transform Ukraine into a digital state, including the development of the economy, administration and digital society. The reform was spearheaded by the newly established Ministry of Digital Transformation. The most important digital project launched before the war was the Diia mobile app, which provides citizens with digital access to their legal documents and provides a single portal for public services. The platform automates government services and digitises essential documents such as driving licences and passports. The application is the main form of identification for millions of Ukrainian citizens and can hold important documents. Among the goals of the digitalisation was also to improve access to services for vulnerable citizens, such as people with disabilities, the elderly, and residents of remote rural areas, as well as residents of Donbas and Crimea, the regions under Russian occupation since 2014. The reform was known as the *barrier-free society* concept. Another key policy of the government in Kiev was to decentralise power, promoting the devolution of powers and resources to be *as close as possible to the constituency they serve* and encouraging local initiatives and community empowerment (Bandura and Staguhn, 2023). An additional element generally influencing the large scale of aid support was the Ukrainian authorities' establishment of a stable regulatory environment for humanitarian activities, and the attempts made to institutionally coordinate increased humanitarian flows and directions. The Central Coordination Headquarters for Humanitarian and Social Affairs (CHHSA) was created at the Office of the President of Ukraine in March 2022, which harmonises volunteer initiatives, activities undertaken by international humanitarian organisations, and funding modalities from a specially created national bank



account for humanitarian donations (Martin et al., 2023). The importance of the Ukrainian government in humanitarian undertakings, which aligns with the principle of localisation, one of the priorities of the global donor agreement ‘Grand Bargain’ of 2016, was highlighted by a representative of the Polish Ministry of Foreign Affairs. This entity is strongly committed to providing humanitarian aid to neighbouring Ukraine (MFA Interview 2023).

Being a pivotal decision-maker in the humanitarian support structure within its own borders, the Government of Ukraine has partnered with major tech companies such as Microsoft, Amazon, Google and analytical corporations specializing in big data analytics offering surveillance services linked to human rights violations in the humanitarian sector, namely Palantir and Clearview AI. Executives of the latter met with Ukrainian President Volodymyr Zelensky in mid-2022 to discuss the possibility of using their technology to support Ukraine (Chapman, 2022). Outside of the country, Palantir has been also involved in helping European countries (including Poland, Lithuania and the UK) manage the influx of Ukrainian refugees. Earlier, Amnesty International deemed that Palantir’s software tools and services had allowed the U.S. government unit, specifically the Immigration and Customs Enforcement Agency (ICE), to track and identify migrants and asylum seekers to carry out arrests and workplace raids. The organization accused the company of seeking to *deflect and minimize its responsibility to protect human rights* instead of substantively addressing the human rights risks associated with its contracts. Amnesty called on the data-mining company to prevent its technology from being used to facilitate human rights violations. (Amnesty International 2020; Time 2024). There was also controversy surrounding Palantir’s collaboration with the U.N. World Food Programme (WFP) in the years 2017-2019 (Parker, 2019; Madianou, 2019). The other company, Clearview AI, is the controversial facial recognition software provider which is an entity involved in a number of legal disputes and has been fined in the United States, Canada, Australia, the United Kingdom, and a number of European Union countries for illegal usage of images without obtaining prior permission to publish the image. Both Palantir and Clearview AI provided their platforms and access to their products free of charge to the Ukrainian authorities during the conflict and the movement of refugees (Martin, 2023; Time 2024).

While the provision of free or subsidised technology for humanitarian use is a common type of partnership in the aid sector, concerns arise where the software is clearly designed for surveillance purposes or where the forms used are widely perceived as exploiting a humanitarian crisis to regain reputation. The OCHA office serving as the humanitarian arm of the UN Secretariat, which is primarily responsible for the delivery and coordination of humanitarian assistance to affected populations, points to such risks. OCHA's Humanitarian Data Centre (2020, p. 4) has published guidance highlighting, among other risks of public-private technology partnerships, that *for humanitarian organisations, reputational damage can occur if a private sector partner has been linked to human rights violations in a previous project or is seen as whitewashing by working with a humanitarian partner. This can lead to restrictions in access and harm the affected populations confidence which can undermine the ability of humanitarian organisations to deliver aid.* It must be stressed that the case of Ukraine is different from what has been known so far in the sense that the end-user of both platforms is the government and not humanitarian organisations (Martin, 2023).

## CONCLUSIONS

Digital humanitarianism raises challenges of accountability. The proliferation of ICTs among both affected populations and humanitarian entities reveals critical, unresolved gaps in the legal and ethical frameworks that have traditionally defined and regulated the professional conduct of humanitarian workers. Additionally, the issue of digital accountability in humanitarian emergency contexts becomes particularly complicated when human rights or data protection laws are absent or poorly enforced, and lower standards are applied in analyzing needs and assessing the effectiveness of interventions. The ongoing digitisation and datafication of humanitarian actions are becoming central techniques of humanitarian management, increasingly shaping our understanding of emergencies. Given the limited capacity to enforce the *doing no digital harm* imperative in the sector, alongside the undeniable virtues of digitalisation, it is crucial to identify the risk factors that humanitarian interventions, the actors involved, and the various technologies may entail.

While the application of cutting-edge digital technologies in Ukraine's defense efforts is well known, its potential for the humanitarian sector is less discussed. Consequently, the topic is not addressed at all by Polish researchers. This paper aims to fill the gap. As the analyzed case of Ukraine shows, achieving a balance between the humanitarian sector and its technological connections with the private sector – a major driver of innovations offered for free – may not be an easy task. Political actors, like the Ukrainian government in this situation, cannot be the guarantor of transparency and the protection of humanitarian ethics, including the rights of beneficiaries. It should be emphasized that we are dealing with a real-world laboratory, particularly for AI and data analytics, and we are witnessing the involvement of technology companies in humanitarian activities on an unprecedented scale. The question arises whether, in this scenario, traditional humanitarian actors, as researchers Raymond and Scarnecchia (2018) put it, are increasingly waiting for a disaster to happen.

To avoid passively waiting for a disaster, it seems crucial to observe the effects of the digitization and automation processes of humanitarian demining operations in Ukraine (covering approximately 156,000 square kilometers, making it one of the most heavily mined countries in the world). These processes will be a key factor in Ukraine's recovery and will remain a significant challenge in the coming decades. This humanitarian operation, in accordance with the National Mine Action Strategy until 2033, is primarily executed by the corporation Palantir. The AI-enhanced platform provided by the company is designed to collaborate with databases created by organizations involved in demining operations, ranging from local, regional, and central authorities to agencies and non-governmental operators. There is a need for scientific analyses of this intervention, which is still in its early stages, not only because it addresses issues arising from its potential threats but also because it enriches the *learning* process of humanitarian agencies for similar emergencies in the future.

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