Technological innovation for humanitarian aid and assistance

Providing timely and adequate humanitarian assistance to people affected by a humanitarian crisis is an increasingly challenging task due to people's growing needs and the increasingly complex nature of crises. Conflict and protracted crises leave 135.7 million people in need of international humanitarian assistance today, and the scale of humanitarian need places the humanitarian system under considerable strain. The High-Level Panel on Humanitarian Financing estimated a funding gap of US$15 billion in 2016.

During the World Humanitarian Summit in 2016, former UN Secretary-General Ban-Ki Moon urged the global community to commit to the 'Agenda for Humanity' to address the challenges in the humanitarian sector with the aim of preventing and helping reduce human suffering during crises. Technological innovation in humanitarian assistance is perceived as an enabler in achieving these commitments. Innovation occurs in all areas of humanitarian work, from shelter and health to water sanitation and hygiene. This STOA study, the scope of which is digital and ICT-oriented innovations in humanitarian aid and assistance (Figure 1), analyses the potential of these innovations as transformative tools for both for both people in need and those providing humanitarian relief and gives an overview of the current state-of-play and developments with regards to technological innovation in humanitarian assistance.

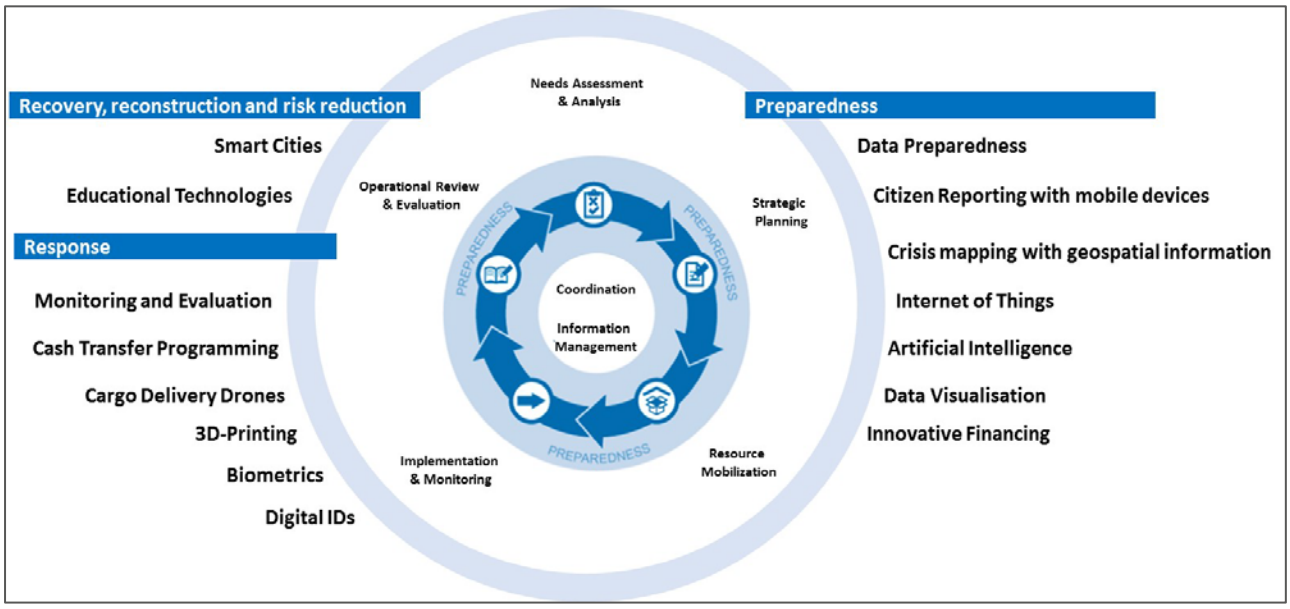

Figure 1 – Overview of technological innovations in humanitarian assistance identified

Source: adapted by the authors for the purpose of this study from Humanitarian response (2018)

The study identifies several areas in which technological innovations appear to facilitate the commitments set out in the 'Agenda for Humanity' and which can enable the improved and continued provision of assistance to people affected by humanitarian crisis. The potential of technological innovation in humanitarian assistance is recognised by stakeholders, specifically with regard to strengthening prevention and preparedness efforts. Technological innovations linked to data preparedness, innovative financing and CTP, as well as innovations such as artificial intelligence (AI), the internet of things (IoT), and smart cities, have the potential to contribute to realising the 'Agenda for

Humanity' objectives, specifically with regard to addressing the humanitarian financing gap, overcoming the humanitarian-development divide, facilitating local ownership and increasing transparency.

Efforts and resources should be focused on addressing the barriers for scaling such technologies to meet the challenges, such as concerns about privacy and cyber security, and limited technological infrastructure and skills. Although efforts to further the ideation phase of the innovation process are relevant and necessary, various innovations already exist that could contribute to the 'Agenda for Humanity' and increase the efficiency and effectiveness of humanitarian assistance when scaled. The policy options presented in the study and summarised here therefore seek to address the main barriers to scaling that would enable the implementation/adoption of innovation in humanitarian assistance. Due to the limited evidence-based research available it is however not possible to formulate definitively the funding that would be required to further technological innovation in humanitarian assistance.

Barriers to scale

The main barriers to scaling technological innovations in humanitarian assistance are clustered around three distinctive dimensions (Figure 2), to guide the exploration of policy options:

1. **Objective**: The ambition and objectives of technological innovation in humanitarian assistance;
2. **Process**: The technological innovation process in humanitarian assistance;
3. **Application**: Application and implementation of technological innovation in humanitarian assistance.

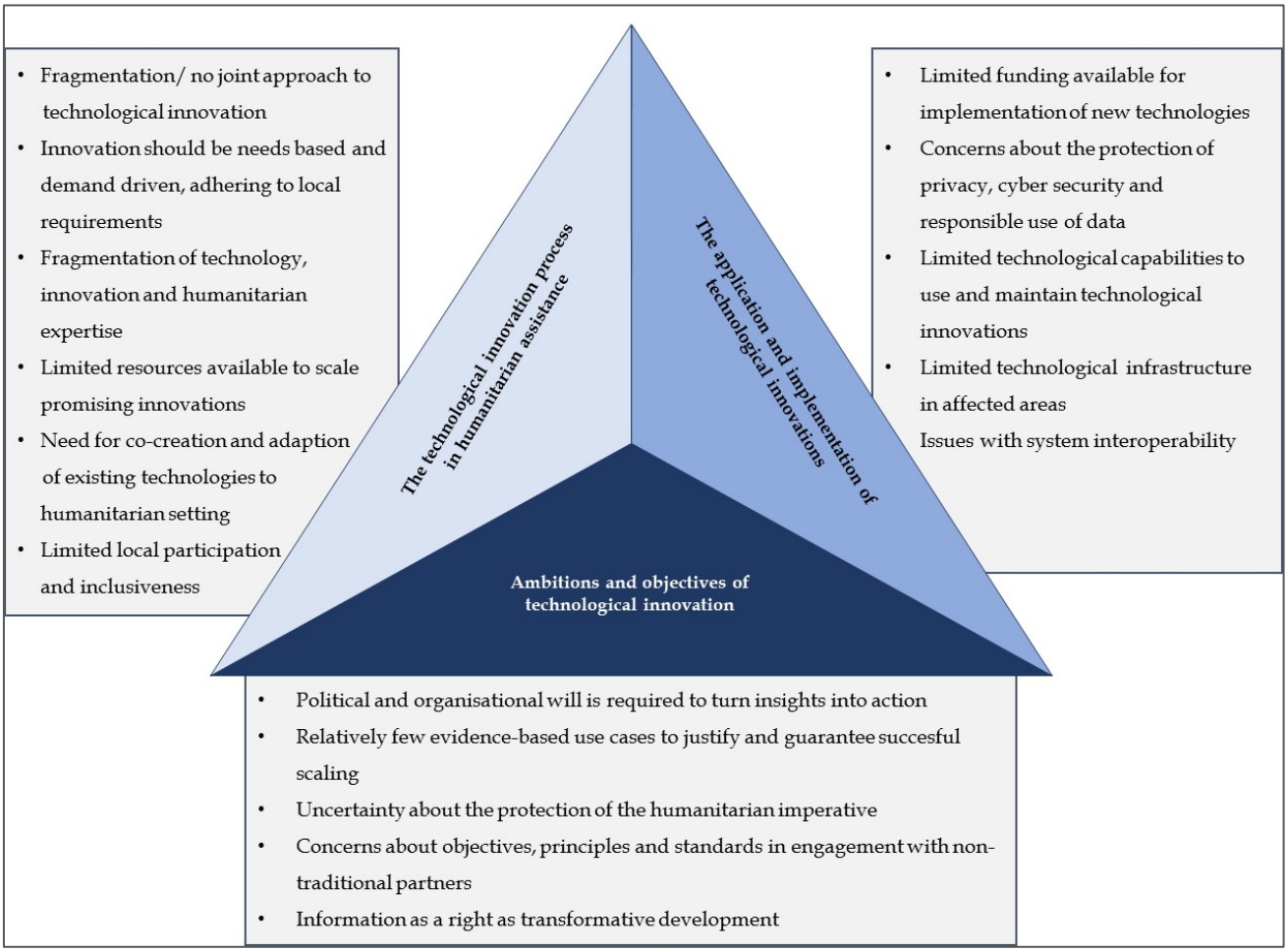

Figure 2 – Main barriers identified

Source: created by the authors for the purpose of this study

Policy options

Policy options addressing 'ambition and objectives of technological innovation in humanitarian assistance' barriers:

- The EU should explore the principle of 'information as a (human) right' and its subsequent impacts on both the legal framework, as well as the delivery of humanitarian assistance. To do so, it should conduct an initial study to identify ways of realising this objective. This study should have a dual focus, including both on citizens in non-crisis situations and as recipients of humanitarian assistance. The research could be conducted under Horizon 2020 or Horizon Europe.
- The EU should continue to urge local governments in risk-prone countries to take prevention and preparedness measures when receiving early warning signals. Governments should be supported with funding and expertise to implement these measures, for example, through development financing mechanisms such as the Neighbourhood, Development and International Cooperation Instrument (NDICI).
- The EU should increase multiyear (earmarked) funding for prevention and preparedness measures that are implemented on the basis of early warning signals as well as innovative financing initiatives. The Humanitarian Aid Instrument should further enable risk mitigation and crisis prevention.
- With the EU being the largest multilateral donor, innovation and innovation standards including collaboration between humanitarian actors, as well as humanitarian and non-humanitarian partners such as academia and the private sector, should be a standard donor requirement from the EU. Furthermore, donor funding for innovation should target the scaling of existing technological innovations in humanitarian assistance. Funding should be geared towards effective and high impact implementation of technological innovations.
- With regard to research programmes, the EU should incentivise actors to conduct thorough assessments of pilot programmes through dedicated Horizon 2020 and Horizon Europe programming for technological innovation in humanitarian assistance or Digital Europe programmes. The research programmes should focus on the implementation of technological innovation in humanitarian assistance. In addition, the EU should enable research into new business models for humanitarian assistance through programmes such as Horizon 2020 and Horizon Europe and should fund research on the state of the humanitarian landscape and the role of humanitarian actors with regards to values and ethics in the forthcoming five years. This could be financed through innovation and research programmes such as Horizon 2020 and Horizon Europe.
- The EU should support the development of a standard for technological innovation in humanitarian assistance. An addition to the Sphere Project or Signal Code developed by the Harvard Humanitarian Initiative (HHI) and its partners could form the basis of such a standard.

Policy options addressing 'technological innovation process in humanitarian assistance' barriers:

- The EU, together with partners in humanitarian assistance, should identify a set of the most promising technological innovations and make these the priority in research programmes and funding mechanisms to study the opportunities for practical application. From this research, investing in concrete innovations such as data preparedness, innovative financing and cash transfer programming appear to have the highest potential. In addition, exploring innovations such as AI, IoT and smart cities will offer opportunities in the future. For example, technological innovations in humanitarian assistance could potentially be embedded in the funding for 'future and emerging technologies' under the Horizon 2020 Excellent Science pillar, or the various funding streams available under the Societal Challenges pillar, which includes 'secure society' as well as 'climate action'.
- The EU, as the largest multilateral donor, should incentivise user-centric design of technological innovations in humanitarian assistance, thereby ensuring that technological innovations match local requirements. The EU should make it a donor requirement for all its dedicated innovation funding and should continue to support collaborative initiatives which share best practices on user-centric design and participatory approaches such as the Global Alliance for Humanitarian Innovation (GAHI) and the Humanitarian Innovation Fund (HIF).
- The EU should invest in the development of local ownership in the innovation process as well as the use of technological innovations by fostering dialogue to increase disaster risk reduction, for

example, by making disaster risk reduction a priority of the geographic pillar of the Neighbourhood, Development and International Cooperation Instrument (NDICI). In addition, the EU should explore, with regional counterparts such as the African Union (AU) and the Association of Southeast Asian Nations (ASEAN), the potential of a joint innovation programme to increase local disaster risk reduction.

The following policy options could address the barriers related to the third dimension, i.e. 'the application and implementation of technological innovation in humanitarian assistance'. The EU should:

- Continue the European Innovation Council (EIC) pilot to provide access to funding. In addition, the EU should limit prizes for broad challenges and instead focus efforts and investments on 1) a selected set of challenges and ambitions as agreed in the 'Agenda for Humanity', and 2) scaling of existing promising technological innovations;
- Facilitate capability-building with regards to privacy and responsible use of data through a dedicated skills agenda for humanitarian service delivery. This could potentially stem from an expansion of the Digital Europe programme and could be provided through an online education platform. The EU should make information available on best practices with regards to the protection of privacy and responsible use of data in humanitarian assistance, based on its expertise due to the General Data Protection Regulation (GDPR);
- Finance research on cybersecurity standards for humanitarian assistance through the Digital Europe programme. The programme will help European societies and businesses to make the most of the ongoing digital transformation, while the humanitarian sector is facing similar digital transformation challenges;
- Facilitate the use of technological innovations in humanitarian assistance by facilitating humanitarian workers' skill and capacity development at both international and national levels. The EU has several programmes in place to increase digital skills in the labour force, for example the Digital Skills Agenda and the Digital Europe programme. It may be possible to develop a dedicated humanitarian track within these programmes;
- Offer privacy and cybersecurity tools and checks on humanitarian service delivery providers to identify vulnerabilities and address risks. The EU should explore the possibilities of such checks being conducted by ENISA at the EU level and by national Computer Security Incident Response Teams (CSIRT) within each EU Member State.

This document is based on a STOA study on 'Technological innovation for humanitarian aid and assistance' (624.301) published in May 2019. The study was carried out by Capgemini Consulting, The Netherlands, in response to a request from the Panel for the Future or Science and Technology (STOA) and managed by the Scientific Foresight Unit within the Directorate-General for Parliamentary Research Services (DG EPRS) of the European Parliament.

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