06 ORGA

ORGANIZATIONAL DESIGN FOR AN INTERFACE

The development of an interface between the V&TCs and formal humanitarian system is a design problem that must be left to the stakeholders. This chapter provides a guide to one possible organization design for an interface that might enable V&TCs to complement and augment the operations of the international humanitarian system. It is simple, practical, and without assumption that large budgets are available (although it is clear that new investments are needed). The design is optimized to enable continuous dialogue about and innovation to yield improved communications and information management between all stakeholders: donors, beneficiaries, V&TCs, NGOs, and UN agencies.

Translating the six-element feedback loop from Chapter 5 into a practical system of V&TCs and humanitarian institutions requires a healthy dose of pragmatism. Interviewees said that an overstretched humanitarian staff wants to integrate new activities into a common workflow. They also indicated that this efficiency would be important for putting limited funding for coordination work to best use. This design of such a common workflow is the subject of this chapter.

The authors assumed that the most practical approach to this design challenge was to build off existing initiatives and to glue them together into a constellation of activities. The organizational design includes new elements only where necessary. It includes four elements:

1. Humanitarian Technology Forum
2. Humanitarian Innovation Lab
3. Humanitarian Information Coordination Cell (HICC)
4. Humanitarian Research and Training Consortium (HRTC)

Credit: Government of Colombia, Nigel Snoad, Andrej Verity

HUMANITARIAN TECHNOLOGY FORUM

The forum would be a neutral venue for surfacing shared problems between the VT&Cs and the international humanitarian communities, including member states whose work in humanitarian operations is expanding. Members would have space to review successes and failures and brainstorm possible solutions. Additionally, they could recommend further work on promising solutions by members of the Lab and the academic community under the Humanitarian Research and Training Consortium. Additionally, the Forum would function as the primary mechanism for dispute resolution between the communities, and would be a place for the discussion of the ethical and procedural issues that must remain in balance to pursue humanitarian ends.

The need for a neutral space

This concept of a 'neutral space' or 'holding environment' is a core design element of many best practices in dialogue and change management.[16] Work that crosses organizations and specializations requires a safe space where those with different belief structures around the work can safely raise issues and explore alternative mindsets. The space should facilitate face-to-face connections across organizational divides, enabling stakeholders to build relationships that are critical during field operations. This space should provide a forum for the discussion of how information management policy and ground truth interact. And it should be open to everyone from donors and beneficiaries to technologists at operational organizations and the agencies that contract with them.

> "It seems to me to be quite perfect that it's that kind of community based approach that could be a good way of getting discussion going. And the discussion is what creates the basis for trust and the trust creates the possibility of working together for practical projects." *–Paul Currion*

The Humanitarian Technology Forum would rely on this best-practice design as a starting point. A professional facilitator should moderate this neutral space. He or she could focus the communities on their common work and help various factions (which may not map neatly onto organizations) to find ways to acknowledge differences and adapt to changing situations. Facilitation should gradually be handed over to the community itself as it develops its own leaders.

The basic structure of this space would be the opposite of that found in most formal institutions: it would work by lightweight, largely informal processes—only as many rules as necessary to ensure focus on the work of bridging the communities and building common tools, practices, and policies. The internet engineering task force might be one model. The bylaws of the forum would contain clauses that enable the members to develop their organizational designs and processes to meet changing requirements, and ensure that the forum remains focused on what is simple and practical.

The Humanitarian Technology Forum should function as one of the primary means to engage in conflict resolution between the international humanitarian community and V&TCs. Through open dialogue, discussions could analyze the root causes of information management challenges, while also making all parties aware of opportunities opened by new tools and practices.

The forum would also explore shared requirements and facilitate agreement on data standards and APIs. Through exploration of common technical problems, the Forum could agree to forward applied research questions to the Humanitarian Innovation Lab.

Meetings

The forum should be hosted at a neutral physical space and facilitated by moderators skilled in dialogue across organizations and cultures. The forum would

hold an open face-to-face meeting once per quarter, focused on bringing together key stakeholders to discuss agenda items that the group sets in its yearly plan. The meetings would also enable members of the forum to add problems to its agenda based on the unfolding process of discovery. It would also hold a larger annual meeting, the goal of which would be to set an agenda for the year and to share lessons learned from responses both large and small.

Membership

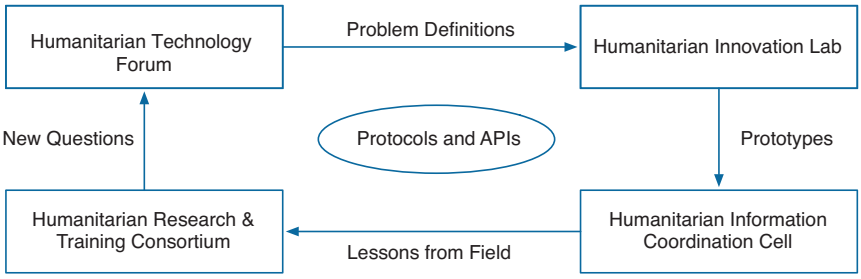
Like the Crisis Mappers Network, the forum would include practitioners and academics in crisis information management, including members of the IASC Information Management Task Force. It would also include donors, senior managers, and members of civil society who have participated in a leadership role in previous and ongoing emergencies. By inviting representatives from member states that received humanitarian assistance, the forum could harness lessons learned and focus on approaches that build the capacity of disaster-affected communities. The forum itself will decide the mechanism for ensuring inclusive membership while also keeping the size of the conversation manageable. The forum might request to elect a member to represent it at the IASC Information Management Task Force meetings as an observer.

To build the capacity for in-house facilitation, the forum should enlist the aid of critical individuals in the social networks of the international humanitarian system and V&TCs—the so-called supernodes identified by many of the interviewed respondents, including Nigel Snoad, Paul Currion, and Patrick Meier. It should also leverage connections to major communities of practice, including Crisis Mappers, OCHA, and Crisis Commons, though it should maintain an existence separate from these institutions, which have a different focus. The Humanitarian Technology Forum is first and foremost a neutral space between V&TCs and the international humanitarian system; it cannot serve that role if it is itself merged with an existing V&TC.

Budget

The forum's budget would include paying facilitators to establish a safe holding environment and to assist the community with any major conflicts. This could be treated as a start-up cost which would eventually disappear. The budget would also include some amount to enable an annual a meeting of 100–150 people and quarterly meetings of 20–30 people, with at least some travel funds for small V&TCs who have little budget for these trips.

DRAFT FRAMEWORK



HUMANITARIAN INNOVATION LAB

Cross-organizational experimentation plays a critical role in the advancement of tools, practices, and policies. Most institutions design new information systems based on internal requirements. As a result, they optimize solutions to their own agendas, leaving little budget or staff time for the larger problem of coordination. As expectations for coordinated action among clusters and V&TCs increases, each organization will need develop methods to open its data to partners. There are very few venues for organizations to explore how to increase their openness to outsiders and make their systems both permeable and interoperable. The Humanitarian Innovation Lab would be way to provide this space.

The lab would find ways to connect data to specific decision making cycles. It would take recommendations from the Humanitarian Technology Forum, Humanitarian Information Coordination Cell, and the Humanitarian Research & Training Consortium, exploring possible solutions to gaps in crisis information management. Its especial focus would be the bridge between the V&TCs and the formal humanitarian systems. To that end, the lab would use open standards and would be biased towards open source software (though the lab would work with the vendor community to foster the use of service-oriented architectures with open APIs so as to integrate proprietary systems currently in use in the field). The lab would explore how to apply the data schema in the Common Operational Dataset to specific objects in the field, for instance, developing specific semantics to describe water bladders, sup-

Credit: IRIN

plies, and other objects that have not already been so characterized, building on existing work by the Logistics, Health, and Camp Management clusters. It would also explore how to integrate information gleaned from crowdsourcing applications into the coordination of response operations. One example would be how to integrate local leaders into on- and off-line discussions during an emergency operation.

Credit:Andrej Verity

Design

Taking advantage of best practices for these innovation labs, the Humanitarian Innovation Lab would exist half-inside and half-outside the UN. After exploring the possibility that the lab might exist as a virtual organization, interviewees strongly recommended that the lab bring together developers into a physical space.

> "You cannot innovate at velocity to create useful humanitarian tools without interpersonal contact—trust building; sitting together; spontaneously drawing things, erasing, and redrawing. Brainstorming over coffee, grumbling over a beer, breaking things together and fixing them together. You need a space for a passionate, dynamic, multi-disciplinary in-house team to gather requirements (by hosting people who come to visit and tell it like it is); to do rapid prototyping; to try things out in the field, fail utterly but instructively, and then try again."
> *–Robert Kirkpatrick, UN Global Pulse*

The lab would require physical space, where an initial staff might draw together UN and NGO staff with independent contractors from V&TCs to work out proper design before evolving the lab into a more formal UN entity. It might also explore partnerships with NGOs that focus on cross-organizational technology issues, such as NetHope. This initial pilot would be sufficient to support 1–2 coordinators to get the lab off the ground. At scale, the lab may model UN Global Pulse, which has about a dozen staff. Its other 'staff' would be personnel who are seconded from other agencies, NGOs, and V&TCs for the purpose of working on problems identified by the Humanitarian Technology Forum and Humanitarian Research & Training Consortium. The staff—who might be called 'fellows' to parallel the academic concept of an individual involved in a time-limited research project—might also include members of the coordination cell who wish to collaborate on improving tools and methods from the field. The team would be consciously built from a small core of professionals from various skill sets: business analysis, information management, database design, and standards building.

To ensure that policy and ethical questions are addressed within the initial designs of the project, OCHA would augment its policy staff and provide an officer whose role is to ensure full respect for and adherence to humanitarian principles and to work them into the design of solutions built in the labs. This would ensure that humanitarian principles are baked into the design of prototypes—embedded in the code itself.

The lab would need a physical office, with meeting spaces to convene developers to discuss hard problems in the humanitarian space. Following the lead of UN Global Pulse and the InSTEDD Innovation Labs, much of the time, staff would also travel to regional and field offices with personnel who are closest to problems in the field.

UN Global Pulse would like to partner with the Humanitarian Innovation Lab. It may well be possible to develop additional partnerships with the World Bank Global Fund for Disaster Risk Reduction Labs and the UNICEF Innovation Unit to share costs and build network effects around the people working on shared problems.

> In any community of practice you have a core group, which does a lot of the work. And I'm talking about this in terms of discussion. I think the key will be to make sure that core group is enabled and empowered to pick up the slack when the emergency hits in terms of guaranteeing the service level response—almost like a service agreement. *–Paul Currion*

Credit: UN Photo/Sophia Paris

Budget

The start-up budget would support 1–2 full-time employees (FTEs) who would build a network of open-source developers around the initiative and piggyback with other innovation labs at the UN, including the Global Pulse and UNICEF teams. This small team would grow to around a dozen FTEs, many of whom may be seconded from their respective organizations. The budget would include travel funds for core developers who volunteer their time and/or are seconded from their own organizations to work from field offices in the developing world. The lab might eventually curate an investment fund to commission software from the developed and developing world, preferably using best-practice models for investing in small-to-medium sized businesses.[17]

Processes

The Lab would craft and advance tools, practices, and policies enable all stakeholders to humanitarian emergencies—beneficiaries, donors, member states, innovators, and operational organizations—to make better decisions on partial data, and to manage the handoff of data from preparatory work to responders and then to steward data from responders to development agencies.

It would provide a safe place for experimentation, where stakeholders from across the V&TCs and international humanitarian community could explore common problems and devise solutions based on the best available solutions. Where necessary, the lab would explore the development of new applications from scratch. The development process would be oriented around inclusive, participatory analysis of problems and collaborative approaches to innovation. The lab would convene thought leaders from various technology projects (public and private) and seek ways to connect their tools together like legos. The lab might also explore open innovation models that incorporate the power of crowds to contribute to collective solutions. The lab would foster an ethos of iterative learning, where experimentation leads to attempts, which may fail but which reveal some new element of insight into the problem.

Creating this safe space for creative failure and creative destruction requires certain protections from the demands of performance metrics that are typical in a large organization. Innovators have to be free to fail. It should be emphasized to management that success in this context is in the quality of the thinking. That is, success is not in the number of fielded ideas generated by a process, but how the learning from problem solving changes the approach to problems themselves. It should be noted that the strength of the relationships created across clusters and V&TCs is another measure of success, as these relationships will be the pathways by which solutions flow during crisis response operations.

As part of this work, the lab would also work closely with the following entities:

- The IASC Standing Task Force on Information Management and cluster system for humanitarian coordination.
- OCHA ISS for data standards, common operational dataset, and field practices.
- Connection into the proposed UN Center of Excellence on Spatial Data Infrastructure (COE on SDI).
- UN CITO efforts on crisis information management (CIM).

- UN Global Pulse for innovation labs and collective intelligence.

- World Bank Global Fund for Disaster Risk Reduction Labs.

HUMANITARIAN INFORMATION COORDINATION CELL (HICC)

Multiple veterans of field operations called for the creation of some organization that would be responsible for building a composite picture of response operations. Many had hopes for a simpler version of the Humanitarian Information Centre (HIC), which deploys to major emergencies to augment information management processes. While some interviewees called for a new NGO, some looked toward extensions of existing volunteer entities, like the deployment of trained V&TC field operators under the Crisis Mappers Standby Task Force (SBTF). What was clear is that some entity would need to provide reliable and consistent services under a service level agreement to troubleshoot issues that clusters and NGOs are experiencing in the field around data collection, visualization, and analysis (as well as other IM challenges).

Design

One suggested entity would be an NGO, whose mission is to deploy under OCHA to support the fusion of information into a common operational picture. It would contract with V&TC organizations like the Crisis Mappers Standby Task Force to deploy coordination cells under the OCHA team and provide services at reach-back locations in countries of convenience to all parties (likely NYC or Geneva).

This new coordination cell would augment the former role of the HIC and focus on creating information management services that stitch fragmented information systems into a composite picture of the operations. It would operate under a mandate from OCHA to deploy to large or complex emergencies (or both) to become problem solvers, helping cluster staff collect, characterize, analyze, and visualize data so that decision makers have a full picture of the operation.

Staff

The team on the coordination cell would draw together specialties in information management, including GIS analysis, needs assessments, database management, data schema, data transformation, SMS-based crowdsourcing, communications, and information design. Members might be drawn from each cluster's area of specialty, especially during complex emergencies. Physicians with experience in informatics would be particularly valuable, as they tend to understand how information impacts critical decisions in public health as well as the overall administration of the response. The staff would likely also be drawn from entities like MapAction, IMMAP, and the Crisis Mappers Standby Task Force.

Budget

The budget would be similar to MapAction: under a memorandum of understanding, donors to UN agencies and private sector groups would be invited to fund deployments of small teams to major crises. The entity would work between crises developing and testing tools with the Humanitarian Labs.

Credit: OCHA/Akiko Harayama

Processes

The staff would play the critical role of fixer: a team of information management experts who can assist clusters in understanding data faster and more accurately than current methods allow. They would evangelize and train field staff and V&TCs on use of the common operational dataset. The entity would deploy under some kind of service level agreements that enable the organization to grow into the hectic tempo of humanitarian emergencies. The team would also field test prototypes and solutions from the lab, determining the maturity of the solution for deployment to the field.

HUMANITARIAN RESEARCH & TRAINING CONSORTIUM (HRTC)

There is a need for neutral, scientific evaluation of tools, practices, measurement of impact and policies in humanitarian information management, as well as for training of current and future humanitarians in best practices in information management. Academia is the natural home for this activity. The Humanitarian Research and Training Consortium would be a network of educational institutions around the world with commitments to various forms of humanitarian education that enter into partnership to offer several types of training and M&E:

- Funded by grants to provide training to V&TCs in humanitarian principles, field practices, cluster system integration.

- Funded by grants to provide retreats to formal and informal humanitarian field staff to reflect on recent operations and integrate lessons learned into practices for information management and decision support.

- Funded by grants to staff from UN agencies and NGOs to learn how to integrate new tools and practices from the V&TCs into humanitarian operations, including training in basic geospatial analysis and crowdsourcing. This would be the equivalent of translational research from medicine, which explores how to bring new drugs from the laboratory bench to the bedside.

Design

A consortium of universities and programs would be linked together across continents to align research and training programs to current problems, not only in information management, but also across the spectrum of issues in humanitarian affairs. This consortium would be coordinated by a council convened under the Humanitarian Forum. As with most academic consortia, it would not seek to create a centralized authority structure; instead, it would use a collegial mechanism for aligning efforts and ensuring common standards. It would be prudent to leave the design of this mechanism to discussions between specific institutions, each of which will bring its own traditions to the dialogue.

Credit: UNICEF/Marco Dormino

Staff

Partners at educational institutions would manage the consortium on behalf of OCHA, liaising with staff at the Humanitarian Labs and the coordination cell. In the initial stages, the Humanitarian Studies Initiative (HSI) might convene the core partnership, tying together Tufts University, Harvard University, and MIT with other partners in Europe, Africa, Asia, and the Americas. HSI

has already been performing research and training in humanitarian operations for several years, primarily centered on public health. It would need to work with partners to expand to a global scale and to ensure transition to a larger consortium of equals. A core focus should be on recruiting institutions from the developing world to take leadership roles in the consortium, harnessing the thematic and regional expertise that they bring to the dialogue.

Processes

The Consortium would engage in several areas of activity:

1. **Research:** exploration of problems in information management, crisis pattern identification, impact assessment, verification and validation of citizen-generated data, organizational designs of crisis operations, and other issues as determined by innovative minds and discussions in the Humanitarian Forum.

2. **Training:** training and certification to V&TCs in the methods of the formal humanitarian community, in technology and information management, and in the innovative methods for supporting decision making to all-comers.

3. **Monitoring and Evaluation:** reporting on the lessons learned from the application of new techniques in information management. One key area of focus would be on ideas generated by the Humanitarian Forum, developed by the Humanitarian Innovation Lab, and deployed by the Humanitarian Information Coordination Cell.

4. **Convening Humanitarian Technology Forum.** The consortium would provide the convening space for a neutral forum with alternative sites around the world to foster inclusion of humanitarians from across the globe.

Credit: UNICEF/Marco Dormino

07 DIALO

DIALOGUE

The purpose of this document is not to set forth the final word on how to connect new information flows into the international humanitarian system; but to initiate a conversation about the design challenges involved with this endeavor. Getting beyond the fog of information will take political commitment, time, and diligent effort. Technologists will need to connect information flows from their organizations into the Semantic Web. Policy makers will need to determine what information is safe to release to the global public and under what conditions. And V&TCs will need to discover how to best integrate new thinking into existing international systems.

There are many open questions that emerge in a world where V&TCs and affected populations are active stakeholders in the cluster system. What tools and practices will be needed when clusters can exchange data on their operations, and coordinate their field activities with hundreds of organizations in other clusters? What happens when all data collected from surveys can be linked with other data in the operation, enabling everyone to see the relationships between an indicator for cholera and the status of medical supplies to treat this disease?

In this future, there might be more time for field staff to focus on comparing past and present—to find patterns from previous operations repeating themselves, and to catch the dynamic sufficiently early to take proactive steps to mitigate disease outbreaks, medical supply stock outs, and predictive logistics around where IDPs are just starting to congregate. Working with patterns and trends will raise new technical and organizational challenges. What evidence constitutes a pattern, and when does one know when a pattern is occurring the chaos of a sudden onset emergency? When does this pattern trigger administrative actions, including requests for funding? It is our hope that these questions will be solved in the near future.

Credit: FAO/Truls Brekke, MapAction, Ushahidi/Jonathan Shuler

OGUE

If this dynamic is going to work, it will happen when stakeholders come together and perform a critical task: engaging in active listening. Interviews for this report revealed that the longer a person tends to be in humanitarian operations, the greater an awareness of the complexity of the problem. Often, the awareness generates a practical sense of humility about what any individual can do or know, as well as comfort in leaning into discomfort that divergent views may expose. This wisdom, humility, and willingness to listen and engage in difficult conversations will be the keys to success in the dialogues that follow.

Credit: OCHA/Akiko Harayama

ANNEX 1: GLOSSARY OF TERMS

BACK END SYSTEM	The information systems that are used to manage core processes in an enterprise, including logistics, finances, human resources, procurement, and other data sets that are critical to operations.
BROADBAND GLOBAL AREA NETWORK (BGAN)	Mobile communications service that provides both voice and broadband data simultaneously through a single, compact device on a global basis.
CLOUD	Cloud computing describes computation, software, data access, and storage services that do not require end-user knowledge of the physical location and configuration of the system that delivers the services.
DISASTER SPACE CHARTER	A unified system of space data acquisition and delivery to those affected by natural or man-made disasters.
DE JURE	An expression that means “concerning law,” as contrasted with de facto, which means “concerning fact.” The terms de jure and de facto are used instead of “in principle” and “in practice,” respectively, when one is describing political or legal situations.
GEOLOCATE	A verb meaning to position a point at a specific latitude and longitude.
HUMANITARIAN DATA MODEL (HDM)	Model that seeks to reconcile schemas from humanitarian response agencies. When possible, it matches humanitarian attributes to existing map features in OpenStreetMap.
HUMANITARIAN STUDIES INITIATIVE (HSI)	The umbrella educational program led by Harvard Humanitarian Initiative, including the Humanitarian Studies Course (HSC) and Humanitarian Studies in the Field. Educational content includes seminar series in essential crisis management and field simulation exercises.
HUMANITARIAN PRINCIPLES	The core set of beliefs of the humanitarian community that govern the way humanitarian operations are carried out including humanity, impartiality, operational independence, and neutrality. OCHA On Message: Humanitairan Principles states: “Humanitarian principles provide the fundamental foundations for humanitarian action. Humanitarian principles are central to establishing and maintaining access to affected populations whether in the context of a natural disaster, an armed conflict or a complex emergency. Promoting compliance with humanitarian principles in humanitarian response is an essential element of effective humanitarian coordination.” (ochaonline.un.org/OchaLinkClick.aspx?link=ocha&docId=1164797)

Key documents that establish humanitarian principles are the Code of Conduct for the International Red Cross and Red Crescent Movement and NGOs in Disaster Relief (http://www.icrc.org/eng/resources/documents/misc/code-of-conduct-290296.htm) and the United Nations General Assembly Resolution 46/182. (http://www.un.org/documents/ga/res/47/a47r168.htm)	
Open source projects allow anyone to download and install a copy of their software and to run it on compatible computers or servers. Each copy running on the Web is called an instance.	INSTANCE (SOFTWARE)
A web page or application that uses and combines data, presentation or functionality from two or more sources to create new services.	MASHUP
An online microtasking/crowdsourcing marketplace. See: http://en.wikipedia.org/wiki/Amazon_Mechanical_Turk	MECHANICAL TURK
Microtasking is a strategy for ensuring quality control and high throughputs for large amounts of data that is most commonly used for quick, scalable processing of unstructured data. Workers or volunteers undertake tasks that are broken down into small assignments called microtasks that are given to multiple workers in parallel. Most microtasking platforms are primarily statistical systems, using a variety of analytics to track inter-worker-reliability and the appropriately distribution of tasks to multiple workers to ensure quality outputs and timely throughput.	MICRO-TASKING
Mission 4636 is a partnership between Samasource, 1000 Jobs Haiti, FATEM, Union Haiti, Stanford, Energy for Opportunity, CrowdFlower, SEIU, The Crisis Mappers Network, Ushahidi, FrontlineSMS, Thompson-Reuters Foundation, InSTEDD, The US State Department, Microsoft Research, Digicel, Voila, and a dozen more Haitian NGOs. It was affiliated with Internews and the Communicating with Disaster Affected Communities initiative.	MISSION 4636
Collaborative inter-agency website designed to enhance humanitarian coordination within the cluster approach, and support the predictable exchange of information in emergencies at the country level.	ONERESPONSE
A norm for technical systems derived by an open process and published in an open format, usually royalty free. The World Wide Web consortium includes a set of principles which may resonate with the humanitarian community (from Wikipedia):	OPEN STANDARDS

- transparency (due process is public, and all technical discussions, meeting minutes, are archived and can be referenced in decision making)
- relevance (new standardization is started upon due analysis of the market needs, including requirements phase, e.g. accessibility, multilinguism)
- openness (anybody can participate, and everybody does: industry, individual, public, government bodies, academia, on a worldwide scale)

- impartiality and consensus (guaranteed fairness by the process and the neutral hosting of the W3C organization, with equal weight for each participant)
- availability (free access to the standard text, both during development and at final stage, translations, and clear IPR rules for implementation, allowing open source development in the case of Internet/Web technologies)
- maintenance (ongoing process for testing, errata, revision, permanent access) See http://en.wikipedia.org/wiki/Open_standard.

A military term referring to the placement of resources, capabilities, and expertise at a physical distance from an area of interest, supporting the people who are there performing their tasks.	REACH BACK
Special telephone numbers, significantly shorter than full telephone numbers, which can be used to address SMS and MMS messages from mobile phones or fixed phones. There are two types of short codes: dialing and messaging.	SHORTCODE
The text communication service component of phone, web or mobile communication systems, using standardized communications protocols that allow the exchange of short text messages between fixed line or mobile phone devices.	SHORT MESSAGE SERVICE (SMS)
A series of civil-military demonstrations that show methods for civilian and military agencies around the world to work effectively together within a disaster response.	STRONG ANGEL
Individuals who are highly connected in the small world of humanitarian operations. They are hubs who play a crucial role routing information, bridging organizational boundaries, and healing broken connections when staff rotate from one role to the next.	SUPERNODES
An effort to convene the many stakeholders to crisis response operations and to "harmonize the use of tools and systems to produce, disseminate and archive information in a manner that can be scaled up or rapidly focused to deal with any type of crisis." See http://ict4peace.org/what-wedo/the-crisis-information-management-strategy.	UN CRISIS INFORMATION MANAGEMENT STRATEGY (UN CIM)
Eleven groups of UN agencies, NGOs and other international organizations arranged based on a sector or service they provide during a humanitarian crisis: Protection, Camp Coordination and Management, Water Sanitation and Hygiene, Health, Emergency Shelter, Nutrition, Emergency Telecommunications, Logistics, Early Recovery, Education	UN CLUSTER SYSTEM

and Agriculture. Each cluster is led by a designated agency. The system was established by the UN IASC in 2005.	
Combining outsourcing with upgrading	UPSOURCING
An internet site that collects information from diverse sources, then displays it in a unified way. Also known as a links page.	WEB PORTAL
A software system designed to support interoperable machine-to-machine interaction over a network.	WEB SERVICES
A website that allows the creation and editing of any number of interlinked web pages via a web browser using a simplified markup language or text editor.	WIKI

ANNEX 2: ACRONYMS

Mobile communications service that provides both voice and broadband data simultaneously through a single, compact device on a global basis.	BROADBAND GLOBAL AREA NETWORK (BGAN)
A coordination mechanism facilitated by UN OCHA to plan, implement and monitor humanitarian activities. Includes preparation of coordinated appeals for funding from the international community and donors when a humanitarian crisis response requires international response from more than one organization.	CONSOLIDATED APPEALS PROCESS (CAP)
Crisis Information Management	CIM
A predictable, core sets of data needed to support operations and decision making for all actors in a humanitarian response.	COMMON OPERATIONAL DATASET (COD)
A system adopted by the UN to simplify the means by which countries are reimbursed for providing equipment, personnel and self-sustainment support services to formed military or police contingents in peacekeeping missions.	CONTINGENT OWNED EQUIPMENT (COE)
Design, Monitoring and Evaluation	DM&E
Delta State University in Mississippi	DSUM
Thomson-Reuters Foundation Emergency Information Service – deploys expert Action-Units of journalists to scenes of major catastrophe where they seek out, collate and disseminate information to disaster-struck populations.	EMERGENCY INFORMATION SERVICE (EIS)
A high level position in the United Nations that heads the Office for the Coordination of Humanitarian Affairs. The ERC serves as the UN Under Secretary-General for Humanitarian Affairs.	EMERGENCY RELIEF COORDINATOR (ERC)
European Union	EU
First assessment system toolset for the first 72 hours.	FAST72

Full time equivalent	FTE
A partnership of 36 countries and 6 international organizations committed to helping developing countries reduce their vulnerability to natural hazards and adapt to climate change.	GLOBAL FACILITY FOR DISASTER REDUCTION AND RECOVERY (GFDRR)
Geographic information system	GIS
Global positioning system	GPS
Model that seeks to reconcile schemas from humanitarian response agencies. When possible, it matches humanitarian attributes to existing map features in OpenStreetMap	HUMANITARIAN DATA MODEL (HDM)
Humanitarian Free Open Source Software: a collaborative, community-building project started by computing faculty and open source proponents at Trinity College, Wesleyan University, and Connecticut College.	HFOSS
Harvard Humanitarian Initiative – interdisciplinary academic and research center that works to relieve human suffering in war and disaster by advancing the science and practice of humanitarian response.	HHI
Humanitarian Information Coordination Cell	HICC
Humanitarian Studies Initiative – the umbrella educational program led by Harvard Humanitarian Initiative, including the Humanitarian Studies Course (HSC) and Humanitarian Studies in the Field. Educational content includes seminar series in essential crisis management and field simulation exercises.	HIS
Humanitarian Research & Training Consortium	HRTC
Committee that aims to improve coordination of humanitarian assistance through its membership, which includes both UN and non-UN humanitarian partners.	INTER-AGENCY STANDING COMMITTEE (IASC)
Information Communication Technology	ICT
A foundation that aims to enhance the performance of the international community in crisis management through the use of ICTs.	INFORMATION COMMUNICATION TECHNOLOGY FOR PEACE (ICT4PEACE)
Internally displaced person	IDP
International humanitarian systems	IHS
Nairobi's Innovation Hub for the technology community is an open space for the technologists, investors, tech companies and hackers in the area. This space is a tech community facility with a focus on young entrepreneurs, web and mobile phone programmers, designers and researchers. It is part open community workspace, part vector for investors and VCs and part incubator.	INNOVATION HUB (IHUB)

Information management	IM
Humanitarian organization that for more than a decade has worked on the effective use of information management practices and principles in service to the world's most vulnerable populations.	INFORMATION MANAGEMENT & MINE ACTION PROGRAMS (IMMAP)
Information management officer	IMO
A non-profit organization focused on bottom up design and development of tools and services for social good.	INNOVATIVE SUPPORT TO EMERGENCIES DISEASES AND DISASTERS (INSTEDD)
Monitoring & evaluation	M&E
United Nations Stabilization Mission in Haiti	MINUSTAH
Memorandum of Understanding	MOU
A legally constituted group that operates independently from any government. They generally pursue social goals, but are not overtly political. They are sometimes referred to as civil society organizations.	NON-GOVERNMENTAL ORGANIZATION (NGO)
New York University Tisch School of the Arts Interactive Telecommunications Program	NYU ITP
OCHA is the arm of the UN Secretariat that is responsible for bringing together humanitarian actors to ensure coherent response to emergencies. OCHA's mission is to mobilize and coordinate effective and principled humanitarian action in partnership with national and international actors in order to alleviate human suffering in disasters and emergencies; advocate for the rights of people in need; promote preparedness and prevention; and facilitate sustainable solutions.	UNITED NATIONS OFFICE FOR THE COORDINATION OF HUMANITARIAN AFFAIRS (OCHA)
OCHA Information Services Section	OCHA ISS
Community of hundreds of thousands of mappers dedicated to building a free and open map of the world.	OPENSTREETMAP (OSM)
Rochester Institute of Technology	RIT
Return on investment	ROI
An online volunteer-based community that turns ad hoc groups of tech-savvy mapping volunteers that emerge around crises into a flexible, trained and prepared network ready to deploy. Represents the first wave in Online Community Emergency Response Teams, first launched at the 2010 International Conference on Crisis Mapping (ICCM 2010) to streamline online volunteer support for crisis mapping following lessons learned in Haiti, Chile and Pakistan.	STANDBY TASK FORCE (SBTF)
Spatial data infrastructure	SDI

San Diego State University	SDSU
A labor union in the United States, focused on organizing workers in health care, public services, and property services.	SERVICE EMPLOYEES INTERNATIONAL UNION (SEIU)
Service level agreement	SLA
Small and medium enterprise	SME
The text communication service component of phone, web or mobile communication systems, using standardized communications protocols that allow the exchange of short text messages between fixed line or mobile phone devices.	SHORT MESSAGE SERVICE (SMS)
United Nations Chief Information Technology Officer	UN CITO
A stand-by team of disaster management professionals who are nominated and funded by member governments, OCHA, United Nations Development Program and operational humanitarian United Nations Agencies such as WFP, UNICEF and WHO.	UNITED NATIONS DISASTER ASSESSMENT AND COORDINATION TEAM (UNDAC)
Organization that links the UN's work with others around the world, mobilizing the energy and expertise of business and non-governmental organizations to help the UN tackle issues including climate change, children's health, peace and security, and poverty eradication.	UNITED NATIONS FOUNDATION (UNF)
UN High Commission for Refugees	UNHCR
The United Nations Children's Fund	UNICEF
An autonomous body within the UN system with the purpose of enhancing the effectiveness of the UN through appropriate training and research.	UNITED NATIONS INSTITUTE FOR TRAINING AND RESEARCH (UNITAR)
A UN technology-intensive program that delivers imagery analysis and satellite solutions to relief and development organizations within and outside the UN system to help make a difference in humanitarian relief, human security, strategic territorial and development planning.	UNITED NATIONS OPERATIONAL SATELLITE APPLICATIONS PROGRAM (UNOSAT)
Urban search and rescue	USAR
Volunteer and Technical Communities	V&TC
OCHA supported website that facilitates decision making for international response to major disasters though real-time information exchange by all actors of the international disaster response community.	VIRTUAL ON-SITE OPERATIONS COORDINATION CENTRE (VIRTUAL OSOCC)
Water, sanitation, and hygiene	WASH
The UN's frontline hunger relief agency, WFP aims to bring food assistance to more than 90 million people in 73 countries in 2011.	WORLD FOOD PROGRAM (WFP)

FOOTNOTES

[1] Tim Berners-Lee, Testimony of Sir Timothy Berners-Lee, CSAIL Decentralized Information Group Massachusetts Institute of Technology, Before the United States House of Representatives Committee on Energy and Commerce Subcommittee on Telecommunications and the Internet Hearing on the "Digital Future of the United States: Part I – The Future of the World Wide Web", http://dig.csail.mit.edu/2007/03/01-ushouse-future-of-the-web.html.

[2] Ibid.

[3] Paul Currion, "New Lamps for Old: The Role of Information Management in Humanitarian Assistance," The Newletter of the International Council of Voluntary Agencies 3–1 (28 February 2001): http://www.icva.ch/doc00000267.html#opinion.

[4] Data dictionaries act like thesaurus around one concept. For instance, if WHO is referring to a particular region of a river in a cholera report, it is not possible for WFP and the water/sanitation cluster to automatically relate their own data to that region. Any analysis would be the responsibility of a human to collect, analyze, and report on any possible interlinkages manually. Automated discovery or early prediction of action (such as a cholera outbreak automatically triggering an analysis of medical supply chains and water purifiers to the affected region) would be highly unlikely. Such data would need to be pulled by a coordinator who understands the complex interdependencies of a cholera response operation.

[5] For example, the schema in the WASH cluster lack a means to specify a water bladder of x type has been placed in an IDP camp with y P-Code with at a specific latitude/longitude with z capacity. Without this level of specificity—including location-aware attributes for integration into GIS applications—the common operational dataset will be hard to implement in way that facilitates breakdown of data silos.

[6] Under UN humanitarian principles, datasets with personally identifiable information about refugees and internally displaced persons require special protections so that no harm comes to the people about whom the UN has data.

[7] Political sensitivities are sufficiently high that the authors of this document chose to leave out quotes from these interviews.

[8] Crowdsourcing Crisis Information in Disaster-Affected Haiti, Jessica Heinzelman and Carol Waters, US Institute of Peace, Sept 2010.

[9] For more on software code as a form of modern law, see Code by Lawrence Lessig.

[10] ICT4Peace Foundation document from Palisades meeting and Crisis Mappers document.

[11] See Peter Senge, The Fifth Discipline; Ronald Heifetz et al, The Art and Practice of Adaptive Leadership; Otto Scharmer, Theory U; John Sterman, Business Dynamics (which takes a quantitative approach to systems thinking as applied to business processes).

[12] The Common Operational Datasets (COD's) are predictable, core sets of data needed to support operations and decision-making for all actors in a humanitarian response. The COD's are defined in the IASC Guidelines Common Operational Datasets (CODs) in Disaster Preparedness and Response, Endorsed Nov 2010 http://bit.ly/eigMGI.

[13] IASC Needs Assessment Task Force (draft) IASC Operational Guidance for Coordinated Assessments in Humanitarian Crises, and Key Sectoral Indicators http://oneresponse.info/resources/NeedsAssessment/Pages/Indicators%20and%20Guidance.aspx

[14] See P. Senge, The Fifth Discipline, opening of Chapter 1.

[15] A. De Tocqueville, Democracy in America, Volume II, Book Two, Chapter V.

[16] Cf. The Practice of Adaptive Leadership from Ronald Heifetz taught at Harvard for 25 years and The U Process from Otto Scharmer and applied by Peter Senge, which has been in use for nearly as long.

[17] Although on another order of magnitude, the 'KfW' framework used by Germany to manage Marshall Plan funds over the past six decades and reinvest those funds in small-to-medium-sized businesses might be a good thought exercise to ensure feedback loops will lead to continual reinvestment.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