HUMANITARIAN INNOVATION FUND
Final Report

Organisation Name	UN OCHA

Project Title	**Humanitarian Exchange Language (HXL)**
Problem Addressed / Thematic Focus	Data interoperability during a humanitarian crisis
Location	New York, Geneva and the field
Start Date	January 2014
Duration	12 months
Total Funding Requested	GBP 143,166

Partner(s)	UNHCR, WFP, Save the Children, World Bank, UNICEF, USAID and IOM
Total Funding	GBP 143,166

Innovation Stage	Development (and implementation)
Type of Innovation	Process innovation
Project Impact Summary	An alpha version of a community-created standard for the Humanitarian Exchange Language that is being used by several humanitarian partners.

Reporting Period	**1 January 2014 – 31 December 2014**
Total Spent	GBP 143,166 (exact amount in budget tracker is GBP 139,982 which may be due to exchange rate variables; all funds were spent)

Project activities and outputs

The **Humanitarian Exchange Language (HXL)** initiative developed a core foundational data standard suite for information sharing during a humanitarian crisis. The output consists of three major artefacts:

1. A base standard for encoding any type of data using hashtags in spreadsheets (with special support for multilingual data, repeated fields, and time-series data).
2. A core set of hashtags for encoding data related to aid activities (3W) and refugees (humanitarian profile), together with base data types like location, population, and reporting metadata.
3. A collection of open-source software libraries and command-line utilities for validating, transforming, merging, and analysing HXL-encoded humanitarian data.

These outputs differ in several ways from the original project plan:

- We had originally planned a single data standard; however, we decided that there would be significant benefits (extensibility and reusability) in separating the *how* of encoding data from the *what* of topic-specific hashtags. This approach was vindicated during fall 2014, when it was possible to use HXL to share health-facility data (not an originally-planned data type) during the Ebola response.
- We had planned on designating the standard as "final" by December 2014. However, while we have received significant feedback, including implementations by UNHCR, the British Red Cross, and the Standby Task Force, and detailed proposals from Ushahidi and the Canadian Red Cross, we decided that it was too early to move to a beta release in November. The base format standard is stable and unlikely to see major change, but we have collected a large number of proposed extension tags from the humanitarian community, and need to decide which of these to add to the core hashtag dictionary. We expect to go to 1.0 beta in January 2015, and to 1.0 final during the first or second quarter of 2015.
- We had planned on having more online visual tools for manipulating HXL data, rather than libraries and command-line utilities. These utilities provide the basis for online UI tools, however, we plan to use them to add user-level HXL tools to the Humanitarian Data Exchange during 2015.

Innovation Outcomes

The outcomes from the first year of humanitarian standards work are, as expected, mostly preliminary and speculative. We have established the practicality and importance of data interoperability standards in the humanitarian community, to the point that support for standards (specifically HXL) is now appearing in the plans for new or updated information systems from organisations such as UNHCR, IOM, and the Canadian Red Cross. HXL also plays a key role in OCHA's own planning for the new Humanitarian Programme Cycle.

The most important outcome of the HXL work was, however, an unplanned one. While we had always been aware of the importance of avoiding unnecessary complexity, the HXL Working Group's decision to embrace extreme simplicity (in the form of hashtags), extensibility, and adaptability seem — based on informal, verbal feedback — to have gone a long way to allay suspicions in the humanitarian community about the presumed burden of data standards.

This flexible, simplified approach to standards is a genuine innovation of the HXL standards efforts, distinguishing it from all other data-standards efforts that we are aware of. Early evidence for the success of this approach is the fact that organisations such as the Canadian Red Cross have come to us unsolicited to seek information about HXL and, in some cases, actually adopted the early standard. The success or failure of widespread adoption during 2015 and 2016 will demonstrate whether this outcome is scalable and sustainable.

Methodology

Our initial methodology for developing the standard had mixed success. Bringing together a multi-stakeholder working group proved very effective during the first half of 2014, both for consensus building and for rapid standards development. Working Group members were highly cooperative and results-focused, and the individual members doubled as HXL advocates within their own organisations.

However, once the initial standards scoping and development was complete in summer 2014, the working group approach became cumbersome. Members became increasingly unavailable due to vacations and deployments (especially as the Syrian and Ebola crises continued to escalate), but even more importantly, some of the working group members who made significant contributions about scoping and coverage early in the process were unwilling or unable to contribute to the development of the technical details. The original 10-person working group eventually shrank to a core of 3–4 members who were strongly committed on the technical as well as the broad policy level.

The important lesson learned here is that different people and governance are needed for different stages of a standard's development. During the initial months, broad representation from many stakeholders can help pool expertise and build consensus, but the actual technical work of constructing the standard does not require broad representation, but instead, a high level of personal commitment and an interest in detail. We plan to apply this lesson in 2015 by starting the year with a small, informal group of practitioners who have already implemented or begun to implement HXL to oversee the standard, then building out a larger, more-sustainable governance model over the year based on community consultation.

Producing evidence on the performance of HXL has been difficult, since a standard in its first year is, again, mostly about still-unrealized potential. The number of major humanitarian organisations who committed to participating in the working group (see next section) is one measure; the organisations mentioned earlier who have expressed interest in or explicitly started supporting HXL are another; however, it will be up to us in 2015 and 2016 to translate the current mostly-subjective excitement and interest in HXL into objective, measurable progress as we continue the work begun with the 2014 HIF grant.

Partnerships and collaboration

HXL was a collaborative effort led by ten major humanitarian stakeholders, supported by an open community interest group of over 100 members. The core HXL working group included representation from USAID, the World Bank, UNHCR, IOM, UNICEF, WFP, Save the Children, ICT4Peace, HIF, and OCHA.

During the second half of the year, once the draft standard was in place, the working group's role diminished, and the community's role increased. In particular, the involvement of the Digital Humanitarian Network and the British Red Cross during the Ebola crisis had a major influence on HXL during fall 2014, as both adopted the new standard for key Ebola-related datasets.

2014 also saw the beginning of collaborations that will grow in importance during 2015. UNHCR has added HXL support to the development of its *Population Statistics* service, and will roll it out publicly in early 2015. The Canadian Red Cross has included HXL support in the requirements for its new missing-person tracking system (being built in 2015), IOM is planning HXL support in the next major revision of its *Displacement Tracking Matrix*, and OCHA itself is giving HXL a central role in the new *Humanitarian Programme Cycle.*

Dissemination

During 2014, we disseminated information about HXL primarily through hundreds of bilateral discussions with dozens of stakeholders, but also through conference presentations, blogs, and our community email list.

We published four HXL-focused blogs over 2014:

1. April: Standards Can Make Humanitarian Data Easier http://docs.hdx.rwlabs.org/standards-can-make-humanitarian-data-easier/
2. June: The Path of Operational Data – Where HXL Can Make a Difference http://docs.hdx.rwlabs.org/the-path-of-operational-data-where-hxl-can-make-a-difference/
3. August: Introducing HXL Hashtags for Humanitarian Data http://docs.hdx.rwlabs.org/introducing-hxl-hashtags-for-humanitarian-data/
4. October: The Humanitarian Exchange Language Reaches Alpha http://docs.hdx.rwlabs.org/the-humanitarian-exchange-language-reaches-alpha/

Continuing in 2015, we plan to add some new aspects to our dissemination plan, focussing on two specific areas:

1. Building a bottom-up **community of practice** among information-management practitioners. We have already begun to develop a HXL Cookbook giving practical examples of how the HXL standard and tools can help automate common data validation, cleaning, transformation, and analysis tasks for IM specialists, saving time and improving accuracy. We will use these recipes in 2015 as a basis for building the community of practice through training sessions, workshops and hackathons, blogs, and online bilateral discussions with practitioners.
2. Building top-down **commitment** for HXL support from organisations at the manager/director level, by demonstrating its benefits and explaining the opportunities for interoperability with peer organisations.

HXL has received one mention in the mainstream media as part of a larger story about the Humanitarian Data Exchange, but most of its coverage to date has come from tweets and other references from prominent humanitarians in the social media world. We will focus on more-formal media coverage for the standard's 1.0 final launch in 2015.

Transferability

We plan to continue to develop HXL as a humanitarian-community standard for data interoperability. The core HXL hashtags currently focus on common data

types such as location and population, together with sector-specific hashtags for refugee data and aid activities, though many people have already created their own extension tags (which also work with existing HXL tools, due to the standard's design). In 2015, we will expand the types of sector-specific tags defined in the core standard, bringing in some of the community's extension tags, and find a way to distribute the definition of new core tags so that different sectors/clusters can work independently.

Outside of the humanitarian sphere, the Open Contracting standards group is considering following the core data structure of HXL, while developing its own, domain-specific hashtags for government-contracting transparency. This is an early indication that HXL's innovations may extend outside the humanitarian field, by providing an easier way to make simple, spreadsheet-style data interoperable without the need for more-complex data standards such as RDF, XML, or JSON.