

Marrying logistics and technology for effective relief

by H Wally Lee and Marc Zbinden

Logistics links all the stakeholders in the relief delivery process.

During an emergency, logistics departments have the primary mission to procure and track food, non-food items and gifts-in-kind (solicited and unsolicited) from appeal through to delivery while simultaneously monitoring the commodity and financial information along the relief pipeline. Timely and accurate availability of information is key. An effective operation depends on the emergency manager being aware of the changing needs of the field and communicating these to donors. Despite being the conduit connecting donors to beneficiaries, logisticians are seldom active participants in the acquisition and implementation of IT solutions pertaining to relief operations.

The relief technology landscape

The way information technology is used varies widely among humanitarian relief organisations. The technology landscape in the humanitarian sector is often extremely fragmented, limiting the availability of timely and accurate information. Organisations either buy large off-the-shelf commercial packages that need extensive customisation or create small in-house solutions for each field location. In the former instance, the dynamic variables and context of relief are not captured. Customisation to address this problem is very expensive and inhibits absorption of routine upgrades. Attempts to scale up home-grown solutions are rarely effective and are often dependent on the transient expertise of the organisation's IT staff.

Despite large investments by organisations, origin to destination information about the money, food and non-food supplies and gifts-in-kind is not readily available to decision makers in real time. In addition, manual, non-standardised, error-prone processes still dominate.

IT resources which could enhance information availability, reporting and learning are often not put to best use. Some of the deficiencies of current relief information systems include:

- Data has to be written out onto multiple forms and keyed into multiple spreadsheets.
- Budget control is inadequate; funds may be misspent as a result.
- Usage of funds is not tracked to the extent that donors have requested.
- Procurement procedures are difficult to enforce; integrity is lacking.
- Tracking and tracing of shipments are done manually using spreadsheets.
- There is no central database of history on prices paid, transit times or quantities received/purchased.
- Reports are done manually. Therefore, little reporting and performance analysis is undertaken, other than reporting to donors on quantities of relief items delivered for a given operation.

Harnessing technology

Humanitarian relief organisations have a common need for integrated information systems that are complete, timely and transparent. They should act as a repository for information from operations and integrate with other systems such as finance and human resources. In such a scenario decision makers would have access to valuable information before, during and after a relief operation. A snapshot of the possibilities is provided opposite:

New information technologies enable modular design to connect existing systems and introduce new ones to provide visibility and information about the entire relief supply chain.

Humanitarian Logistics Software

Fritz Institute has used the latest technologies and partnered with logisticians to build an origin to destination tracking system, especially designed for the dynamic relief context. It is based on commercial best practices and adapted to humanitarian requirements through extensive research with many leading relief organisations. Currently implemented at the International Federation of the Red Cross and Red Crescent Societies, the Humanitarian Logistics Software (HLS) is being made available free of charge to other humanitarian relief organisations. Its modularity allows it to be used as a framework tool which can incorporate current systems that underlie the relief supply chain and fill the functional gaps that may exist.

Humanitarian Logistics Software consists of four main modules: mobilisation, procurement, transportation and tracking, and reports. It connects to financial systems to provide real-time visibility for costs, purchases and in-kind donations in the relief pipeline. Information once entered populates all relevant modules.

The mobilisation module simultaneously tracks the needs of the beneficiaries and agency funding appeals, reconciling them with donations. The procurement module controls purchase orders, performs competitive bid analysis and reconciles received goods against invoices awaiting payment. The transportation and tracking module allows consolidation of supplies for transportation and allows the automatic tracking of major milestones in this process. Over time, the procurement and transportation modules become a repository for information about the performance of suppliers and transportation vendors. Finally, the reporting module provides detailed standard and customised reports for donors as well as internal decision makers.

Conclusion

More comprehensive and timely information provision can enhance the effectiveness of decisions made before, during and after a relief operation. However, to realise this potential, humanitarian organisations must develop forward-looking integrated information technology strategies which incorporate the valuable perspective of the logistics function. HLS may be a first step. It is only through collaboration across functions and organisations that the real potential of information can be harnessed for humanitarian relief.

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Preparedness	During operations	Post-operations
<ul style="list-style-type: none"> ■ Historical profile of disaster types with geographic information to predict beneficiary needs more accurately. ■ Past performance of suppliers, logistics providers and donors to plan effective and reliable relief. ■ Market price and historical price by region to prepare contingency stock. 	<ul style="list-style-type: none"> ■ Reconciliation of quantities needed and quantities supplied to accurately adapt to the relief situation. ■ Tracking costs of each operation to calibrate against incoming donations. ■ Visibility of stock <i>en route</i> and stored in warehouses to determine procurement needs. 	<ul style="list-style-type: none"> ■ Accountability of donations (use and administrative costs) to maintain integrity of relationship with donors. ■ Performance of relief operations i.e. time from appeal to delivery. ■ Loss and damage for accountability and claims.

For further information about Humanitarian Logistics Software see: www.fritzinstitute.org

1. The conclusions of this article are based on research into the technology underlying the relief supply chains of ten major humanitarian agencies: American Red Cross, CARE USA, Catholic Relief

Services, International Committee of the Red Cross, International Federation of the Red Cross and Red Crescent Societies, International Rescue Committee, Médecins San Frontières- Belgium, WFP, UNICEF and World Vision International.