TEACHING SUPPLY CHAIN EFFICIENCY IN THE FIELD

A New Approach to Applying Commercial Knowledge to Humanitarian Challenges

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The importance of efficiency in humanitarian operations work, which for the purposes of this discussion, we define primarily as emergency relief, is recognized (Day et al. 2012), and increasingly the subject of academic research. What was once a back-office function, have become the focus of increasing professionalization in humanitarian organizations. Recent developments have driven this progress:

– A recognition that logistics spend comprises a substantial percentage (usually around 80 %) of total funds, creates a burning platform for the best use of these resources. Even small inefficiencies will result in fewer beneficiaries being reached which, in the worst case, translates to loss of life.

– It is no longer enough to do good without pursuing profit. Today, well-meaning response must be results-oriented, transparent, and accountable to donors, authorities and the public.

– In order to report the best possible results to its stakeholders, both humanitarian management and field teams are tapping subject matter expertise to improve processes, skills, and systems performance. The commitment to continuous improvement and professional structures is growing.

The operational conditions specific to humanitarian relief have been formally described (Van Wassenhove 2006), to encourage further research. The established knowledge base in commercial industry and universities are obvious resources to be tapped by the emergency relief operations. Nevertheless, scholars should be mindful of the differences between the two worlds before applying common business terminology (efficiency, performance, measurement), which is fraught with assumptions about strategy, materials, demand, and supply. The contrasts between humanitarian and for-profit conditions, (see Beamon 2004) are worth emphasizing here:

– **Cost (and hence profit) is not a primary incentive:** Conditioned by the overuse of metaphors like "lean", both scholars and practitioners continue to assume that supply chains always strive for low-cost operations. This common assumption must be adapted to humanitarian requirements, where cost-cutting is secondary to an exhaustive spend of donor funds for immediate relief. When we first played the beer game with a partner International Humanitarian Organization (IHO), assuming its lessons to be universally applicable, we were momentarily dumbfounded by the question: *"What score is better? A low one or a high one?"* The explanation that a high score corresponds to high costs, thus to be avoided in most situations, was dismissed with the head-shaking comment: *"In our business, we are out to save lives at all costs. We don't save money."*

– **Emergent and maturing supply chains:** The strategic goals of the humanitarian intervention are always evolving, although few IHOs actually devise exit strategies in advance. Whereas many commercial enterprises eventually arrive at portfolios of efficient and agile supply chains to serve distinct markets and product characteristics, there are always at least three

subsequent phases in the lifecycle of a humanitarian operation: (1) Ramp-up, which is usually agile and high-cost, (2) Maintenance during which efficiency principles may apply, followed by (3) either Exit or transition to Developmental projects. In humanitarian supply chains, the strategy can change twice to three times, with wide-reaching consequences for all functions.

– **A discontinuous supply side:** The flow of materials and finance is driven by the agenda of donors. Operating on a budget earmarked for causes makes it difficult to match the unpredictable batches of supply with actual emergency demand. The nature of the planning process (should such a process exist), is not comparable to the standard logic of a commercial supply chain.

– **Information deficit on the demand side:** There is often little to no information about requirements at the beneficiary (i.e. end-user), or consumer level. The time pressure of a crisis situation, in which hours can mean substantial loss of life (think of the response to an outbreak of cholera or the immediate aftermath of a typhoon or earthquake), hinders accurate and complete requirements planning.

– **A surfeit of the wrong kind of information everywhere else:** Never before has information flowed at the speed with which news travels today. With internet and mobile smartphones the details of a catastrophe are communicated to potential donors in real time and in unfiltered quality. The depiction of tsunamis, earthquakes, and other humanitarian crisis situations tends to trigger unsolicited donations independent of real demand requirements, complicating erratic supply conditions, clogging the emerging supply chain with materials, whose quantity, quality, and scheduling are often unknown. This would be the equivalent of, say an automaker, routinely receiving unannounced deliveries of sedan components to its truck factories, against a commitment to make best use of them (or else!).

– **Capacity constraints:** Since emergency relief supply chains are by definition located in regions where infrastructure has been destroyed, there will be a lack of adequate warehouse and transport capacity. Ports, airports, roads, and local regulations are equally rudimentary. What was daunting pioneer work for early entrants to BRIC regions in recent decades is routine for humanitarian managers. Operations in these backward conditions will have to contend with the surge of demand that characterizes the early stages of a humanitarian crisis.

– **Quality of human capital:** It is commonly understood that well-educated logisticians are key to efficient operations. In humanitarian organizations, due to

the "convergence" which typically occurs at the scene of a disaster, the unanticipated arrival of volunteers, celebrities, media, and even adventurers, introduce a measure of undisciplined, unqualified intervention to the scene. When good managers are most urgently needed, the availability of skilled labor may actually decline, just as the need for coordination spikes. Again, we might compare this to the automaker's factory disrupted by the arrival of well-meaning celebrities or volunteers eager to man the assembly line, blocking the loading ramps with their luggage and retinue.

A logistics officer for emergency relief therefore cannot be compared to the same role in a carmaker or retailer, to name two benchmarks on which our management logic and practice are built. The constraints and uncertainties with which humanitarian supply chain managers must content are indeed more dramatic, with fewer levers at their disposal.

Rising to this challenge, the number of advanced university degree programs – usually at a Master's level and higher – are proliferating. Researchers are engaged in fruitful collaborations with humanitarian relief organizations. The IOM/USI, IFRC/MIT (and other universities) and WFP have demonstrated the success of research-practice partnerships. The motivation of ETH Zurich's project was drawn from its existing collaboration with the Kühne Foundation. Early pilots held at Medair and WFP indicated that there was potential for innovation in capacity-building by actually leaving the classroom.

Revising the traditional competency model

A number of practitioner trainings rely on pre-defined competence models, which combine the SCOR process architecture and academic curricular components to address the anticipated needs of skill profiles. Noteworthy examples include the Fritz Institute's (2007) certification program, which has been completed by over 1,000 virtual participants. Online and distance trainings strive to develop competence on a learner-by-learner basis, although application of the knowledge must be completed later, at the learner's discretion, usually without the support of the instructor.

Traditional competency models like these are centerd around subject matter expertise. Certificate programs assume that there is a knowledge gap to fill and that the properly-trained individual will master group and systems dynamics. Practical experience, and years of teaching the Beer Game, show that the behavior of high-pressure systems, in which materials, information, and ideas flow with time lags, limited transparency, conflicting objectives and unanticipated disruptions, is not easily tamed by single managers, no matter how well-educated or strong-willed. Cross-functional groups do not generally obey logical commands issued from a single authority or function. The humanitarian managers

we have worked with frequently ask for help to reduce silo behavior in their functional organizations. Some headquarters regret that their remote field teams are fully capable of "closing the loop" to donors and other stakeholders, but misinterpret the information needs as a bureaucratic nuisance and so, inadvertently, reduce access to vital resources in the future. Furthermore, an academic degree, while ensuring thorough theoretical coverage, remains a costly and unwieldy body of knowledge for "extreme" practitioners like relief teams. The study scenarios are learned "just-in-case" they present themselves in the field, although there is little time to look up the answer in emergency relief.

Our new educational model explores whether "just-in-case" classroom or online learning could be complemented with "just-in-time" workshops, held in the field. The ETH Zurich, Kühne Foundation and the Kühne Foundation – NUS Education Center for Humanitarian Logistics pooled their field experience and theoretical knowledge to develop a training package around the modified Beer Game (High Energy Biscuit or Mosquito Net distribution instead of beer). Its design also drew from the experience of Hewlett-Packard's Innovation Diffusion team, which had revised the company's traditional Learning & Development model (counting training seats and certificates), to focus on impacting business results. Their observation that, even after education, the challenge of team-based action must be addressed, applies full to emergency relief: *"Putting these innovations to work on their business problems also required support – accelerating project timelines and addressing cross-functional and cross-business collaboration."* (Branvold and Kuper).

To support immediate implementation, the ETH Zurich – Kühne Foundation workshop is customized to the specific humanitarian boundary conditions described here. Its interactive design privileges experiential and action learning over theoretical comprehension. Participants leave with action plans and more information about the system than when they arrive. The role of theory is to stimulate reflection, and provide a reference for more effective practice, especially in those situations where the dynamics of a larger system are not intuitively obvious, and spontaneous reactions can be counter-productive (the bullwhip effect is a good example).

A departure from curricula implies that exhaustive coverage of supply chain topics will not be attempted in any one session. Expanding slightly on Day et al.'s (2012) four improvement areas (demand signal visibility, information management and coordination, preparedness, relationships and trust), the design hypothesis is to focus team learning on those levers expected to have a high impact on humanitarian logistics performance:

1. **Preparedness:** We can't know what will happen when, but we can prepare for the unknown.
2. **Coordination** within the supply chain: Getting the right things in the right place at the right time can make the difference between life and death.
3. **Lifecycle** management of the deployment: Because things have be done differently at setup, middle and ramp-down of deployment.
4. **Stakeholder** management: Because IHOs have so many people involved, in so many locations, with so many different interests.
5. **Knowledge retention:** Because IHOs have naturally high fluctuation, it is wasteful to always start from scratch.

Instead of formulating a curricular or best-practice checklist, learning objectives were defined in the following format:

1. To increase the efficiency (for example: maximize lives saved by distributing the right goods to the right place at the right time) of humanitarian operations by implementing basic management processes of measurement, coordination, and knowledge retention.
2. To understand humanitarian operations as a system of interdependent material and information flows – in order to recognize where these flows can break down, and especially how to avoid the most common mistakes.
3. To learn how to adapt working processes to the phase of operations (lifecycle management of the humanitarian deployment).
4. To identify and manage all the stakeholders in the system, understanding where each of them fits in, how their interests and goals can potentially conflict, and thereby reduce the overall performance of the system.
5. To learn from past experience and deployments by retaining knowledge in the organization in spite of high turnover in humanitarian organizations.

When defining the learning objectives, it was important to distinguish between operative skill-building (i.e. how to pick an order), simulations (Hoberg and Flöthmann 2012), and rehearsals (Spielberg 2010), each of which contribute to capacity-building, but occupy different levels of the learning taxonomy. Since this workshop does not teach operative skills, it should be bundled into a training portfolio which includes execution training, but is clearly positioned to address strategic and structural challenges. Its intent is to accelerate the efficiency of cross-functional humanitarian relief teams, enabling them to diagnose and improve the dynamics of their end-to-end system. Pilot sessions are ongoing, and early feedback has been encouraging enough to schedule further prototyping and data analysis.

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