

Survey on Major Challenges in Humanitarian Logistics

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ABSTRACT

In this work we present the results of a survey on major challenges in humanitarian logistics. The survey was conducted among logistics managers of relief organizations, logistic service providers, and universities investigating in humanitarian logistics. The following issue areas were consulted: (1) Information and Technology, (2) Processes, Organization, Coordination, (3) Infrastructure, (4) Politics, Government. The results in the first issue area focus mainly on needs for action in the context of the transparency, compatibility, and functionality of IT-systems for humanitarian logistics. The transferability of classical and the establishment of specific concepts of logistics and supply chain management were identified as an important challenge in the second issue area. The need for an improved information situation was noticed within the areas “Infrastructure” and “Politics, Government”. Additionally, it can be highlighted that the assessments of the three questioned groups differ in important points, although a common ground for further research was identified.

Keywords

Humanitarian logistics, challenges, logistics service providers, relief organizations, survey.

INTRODUCTION

A common view in describing the term “logistics” in general focuses on all transportation- and warehousing processes including all sub functions such as handling or commissioning with the aim of ensuring the availability of objects needed in line with demand (Baumgarten et al. 2001). As the Council of Supply Chain Management Professionals (CSCMP) points out, it is of high importance to take the management of coordination and collaboration with all partners involved into account (CSCMP 2011). Therefore, in the following, the term logistics is used when the focus lies onto the physical operations. In contrast, the term supply chain management is understood as the integrated and process-oriented planning and control of material, information, and financial flows along the entire supply chain in business or other value adding processes from the point of origin to the point of consumption (Kuhn and Hellingrath 2002). As Tomasini and van Wassenhove (2009) pointed out, although the definitions of “humanitarian” vary in the literature, there is no doubt about its three main principles surrounding the humanitarian space: humanity, neutrality and impartiality. First, humanity figures as a main objective of humanitarian organizations and its actions, so “human suffering should be relieved wherever found” (Tomasini and van Wassenhove, 2009). Second, neutrality can be understood as a restricted room for maneuver, as relief organizations should be committed not to interfere in political issues within the operational area. Third, impartiality obliges humanitarian actors to ensure equal treatment of beneficiary peers. An isolated view on both, humanitarian and logistics, offers first ideas on humanitarian logistics but does not provide a sufficient basis for an applicable definition, as its synthesis has to be clarified.

Although humanitarian logistics is a relatively young topic in supply chain management research and several descriptions of humanitarian logistics have been presented, no generally accepted definition has been provided during the last decade (Blecken 2010). In the following “humanitarian logistics” is described as the “*process of*

Reviewing Statement: This short paper has been fully double-blind peer reviewed for clarity, relevance and significance.

planning, implementing and controlling the efficient, cost-effective flow and storage of goods, materials and equipment as well as related information, from point of origin to point of consumption for the purpose of meeting the beneficiary's requirements." (Blecken 2010) This definition seems to be generic at first sight, but offers the necessary scope on all relevant tasks, concepts, tools, and especially the management function of logistics processes in humanitarian operations. To specify the context of relief operations, the definition above has to be seen in the light of main differences between humanitarian and commercial supply chains, upon latter several works already have focused. As an extensive discussion on commercial and humanitarian supply chain specifications goes beyond the scope of this paper, the main attributes of humanitarian logistics are mentioned and referred to given references for further reading in the following. Based on the strategic goal on saving lives and relieving human suffering, humanitarian supply chains are characterized by: relatively unstable, uncertain and unpredictable demand; role of donors as buyers and beneficiaries as end users; high importance of speed (effectiveness); highly volatile and unstable environment; partly temporary and unknown supply chain design; additional flows of personnel as well as knowledge and skills; and finally the focus on procurement and distribution within the logistics value chain (Beamon 2004; Tomasini and van Wassenhove 2009; Jahre and Jensen 2009; Charles et al. 2009; Blecken 2010). In the context of humanitarian logistics the described process of planning, implementing and controlling focuses on the following functional areas: assessment, procurement, warehousing and transport as well as operations support (e.g. customs clearance or tracking and tracing) and reporting (Thomas and Kopczak 2005, Blecken 2010).

This paper presents the main results of a survey on major challenges in humanitarian logistics. The survey was carried out anonymously with logistics managers of seven internationally active relief organizations, four logistics service providers, and four universities/research institutes investigating in humanitarian logistics, all of them mainly situated in Germany. The main objective of the survey was to identify present challenges in humanitarian logistics. The second objective was to investigate the actors' perspectives divided in the humanitarian, commercial, and academic sector.

PRELIMINARY REMARKS

Numerous studies have shown that humanitarian logistics significantly contribute to the efficiency and effectiveness of humanitarian operations (Thomas and Kopczak 2005; Tomasini and van Wassenhove 2009). Logistic related costs of relief operations likely amount between 40 and 60%, but can sum up to 80% of the total spend (Blecken 2010). Based on the observation that the evolution of supply chain management (SCM) in humanitarian organizations is lagging behind up to 20 years compared to the commercial sector (e.g. McGuire 2006), increased efficiency offers a large potential for savings of logistics related costs and improved resource allocation. Regarding the state of the art on challenges in humanitarian logistics, several surveys and research activities have been undertaken in the recent past. Currently, research activities are focusing on challenges and research gaps in the following areas: process modeling, procedure models, coordination (e.g. McGuire 2009, Blecken 2010); performance measurement (e.g. van der Laan, de Brito, Vergunst 2009, Blecken 2010); cooperation, logistics partnerships, collaboration (e.g. Spens, Kovács 2009, Schulz 2009, Samii 2010); IT-systems (e.g. Howden 2009, Blecken, Hellingrath 2009, Blecken 2010). Beyond these research areas, lacks have also been identified within professionalization, adaptability of classical concepts and methods in commercial logistics, risk analysis and cause studies (e.g. Bölsche 2009, Jahre 2009, Tomasini, van Wassenhove 2009).

The four issue areas have been developed based on discussions within the Humanitarian Logistics Council of the BVL (German Logistics Association) with all involved members, which are logistics managers of internationally active relief organizations, logistic service providers, and universities investigating in humanitarian logistics. Already during the phase of developing the four issue areas, a large part of deficits in humanitarian logistics were identified. These deficits were reflected with current research findings in humanitarian logistics and integrated into a questionnaire, which made the confirmatory basis of the survey. The questionnaire part was complemented by selected challenges mentioned in the literature review above. Nevertheless, as the prime objective of the survey was to identify application-oriented challenges, the main impact was given by the practitioners involved in the relief supply chains in order to find out their practical experiences and estimations both from commercial and humanitarian sectors. Caused by this iterative creation process, some interrelations exist between the four issue areas and specific challenges. Additionally, the iterative development of deficits caused a partly unstructured presentation of subject areas considered and partially different degrees of detail in topics investigated by the survey. This is significant because it reflects the practitioner view and experience of the importance of different challenges enclosed in the survey. On this basis, 42 specific statements were developed. All ratings could have been distinguished between acute and permanent disasters. Due to the manageable number of the members in the working group, particular emphasis was put on performing the deficit analysis by interviewing the experts and integrating additional aspects in the analysis. Hereby, important stimuli for further challenges of humanitarian logistics could be determined in addition to the

statements included in the questionnaire. These answers were integrated in the evaluation after a qualitative consolidation and on condition of multiple entries to ensure its relevance. Thus, it is a mix of a confirmatory study and an (roughly-structured) expert interview. This tailored survey design of closed- and open-ended questions offers additional advantages, e.g. quantifiable interpretation and related information (Dillmann, Smyth, Christian 2009).

As a reflective notice, three aspects have to be anticipated and considered for the survey presented in the following as well as in further research of the identified challenges on humanitarian logistics. These issues are all related to the identified issue areas, so that a cross-sectional analysis about (1.) acute and permanent disaster relief, (2.) internationality, and also (3.) organization size could be affected. First, it should be noted that the distinction between acute and permanent was used to a few specific points in case they are critical only. Second, another overall challenge is to be seen in the internationality (e.g. intercultural competence). Third, the sizes of the relief organizations should be taken into account when individual deficits are discussed and processed.

RESULTS

The issue area “*Information and Technology*” covers 12 statements in the context of information systems for humanitarian logistics (e.g. Sahana), logistics technologies (e.g. tracking and tracing), innovations in information and communications technologies (e.g. donation platform), and information itself (e.g. involved participants during a relief operation). Especially noteworthy is the most prevalent opinion that there are not many information systems which are known and used specifically for humanitarian logistics. There is also a consensus that de facto installed systems are usually incompatible with each other. Within this point, there is obviously a lack of incentives and especially resources for the development and establishment of a common inter-organizational information system. Furthermore, the statements mainly show that logistics costs and logistics performance, especially for acute relief operations, are covered only partially by IT systems. As a further important aspect, the level of inadequate information about supply sources and distribution channels has been identified in conformity. However, it is limited to the logistics for acute relief operations and should be considered separately in terms of supply sources and distribution channels. Since the estimations of the information about available logistics providers and further specialists made by the interview partners differ widely from each other, this aspect gains particular importance. The logistics service providers seem to highlight the core problems particularly in IT systems and the lack of the transparency of the actors involved in relief operations. This is consistent with the assessment of aid organizations, which criticize the insufficient number of IT systems, the capacity for humanitarian logistics and the lack of compatibility with other IT systems. A high discrepancy in the estimates can be found on the information given about the use of funds for donors. It can be said that the transparency stated about the actors participating in the permanent disaster relief of aid organizations is considered significantly less to be a problem.

The issue area “*Processes, Organization, Coordination*” contains 14 statements about procedure models (e.g. process guidelines), performance measurement (e.g. key performance indicators), cooperation and logistics partnerships (e.g. strategic partnerships with commercial actors), and process execution (e.g. pre-commissioning). In the area of process execution two themes were emphasized as being a challenge with great consistency: The Last Mile delivery and limited transferability of classical storage concepts applied to humanitarian logistics. For the main part, the procedure of establishing strategic partnerships regarding the involvement of the new actors seems to be seen as problematic, especially because of the fact that a large majority of the respondents classify inter-organizational networks as very helpful. In the area of performance measurement, the ambitions of the systematic collection, the analysis of services provided, and resources allocated are congruently seen as a working area. A further challenge seems to be related to the issue of the lack of performance indicators in humanitarian logistics. The estimates show considerable differences in issues concerning the potentials of the integration of logistics service providers, the quality of pre-commissioning, and inter-organizational execution of transports. Unlike logistics service providers, which are ambiguous about the added value of their involvement in relief operations, most of the aid agencies seem to be better aware of this integration. Moreover, the answers of the representatives from the universities and research institutes are not clearly formulated, but they tend to prefer assessing the potential of integration as unclear. Given the fact that a similar result can be attained from the statements on the need for cooperation with even far less involved actors in order to manage the relief operations, there is still a need for debate in the context of the necessity and potential of integration of logistics service providers. The logistics service providers also identify a need for improvement related to the pre-commissioning issue, whereas the aid agencies only partly agree with this. On the basis of concrete real-life examples, the debate on this issue should be pursued. A similar scenario can be observed regarding the importance of the inter-organizational transport processes.

The third part of the survey was related to challenges in the area “*Infrastructure*”. Here, eight statements about basic infrastructures (e.g. transport infrastructure), collaboration (e.g. involvement of local specialists), and risk

analysis (e.g. regions-specific forecasts) were verified. The involvement of local authorities is particularly significant within the area of cooperation in the context of aid operations due to infrastructural damages. In the field of basic infrastructures, the need for suitable methods can be mainly specified for transportation planning in damaged transport infrastructures. For the most part, appropriate and affordable communication technologies are also rated as necessary. Another important challenge identified is the lack of a central database of available transport infrastructures. There is another issue which has to be discussed concerning the estimates of requirements and risk analysis as well as the information level of available logistics providers and other professionals, which are worth considering for a collaboration or cooperation in aid operations due to their specialization in specific regions and/or activities. Aid organizations regard the available information in terms of available third-party suppliers and risk analysis as given, but the information level is regarded as critical by the other participants.

The last part of the survey dealt with challenges in the fields “*Politics and Government*”. The statements addressed coordination (e.g. accessibility of central coordination points), cooperation (e.g. assistance by local authorities), and information (e.g. customs regulations) issues. Within the issue area politics and government, the lack of central contact points for legal issues is regarded as problematic. The lack of a central coordination of relevant information (about requirements, storage facilities or infrastructural local situation) as well as the gathering of information about governments and contact points is mutually identified as important challenges. In addition, the quality of the cooperation with government representatives has been criticized and the lack of contact persons for customs law issues has been unanimously identified. Even in this case there is a strong dependency on country or region. Discrepancies in the evaluation of these challenges can arise in two topics. The available information on cultural features as well as the public funding of relief operations is seen as unproblematic by the aid organizations. The representatives of the logistics service providers and universities, however, consider these topics rather as challenges.

CONCLUSION

It can be highlighted that the assessments of the three groups interviewed differ in important points, although a common ground for further research and action needs has been identified. Summing up the results, the following aspects seem to be of high importance. Within the field of “*Information and Technology*” further investigations on IT-systems for humanitarian logistics in terms of utilization (e.g. trainings), compatibility (within and between the humanitarian and commercial sector), financial viability, and functionality (e.g. performance measurement) are of high importance. In the area of “*Processes, Organization, Coordination*” especially the transferability of classical and the establishment of specific methods and concepts of logistics and supply chain management (e.g. last mile delivery, storage concepts etc.) should be focused upon. Furthermore, investigations on cross-sector communication and collaboration (e.g. strategic partnerships) in humanitarian supply chains as well as the development of individual key performance indicators are necessary. Within the fields of “*Infrastructure*” and “*Politics, Government*” especially the need for an improved information situation (e.g. on transport infrastructure, etc.) and suitable coordination concepts can be formulated. In these aspects an appropriate accessibility (e.g. knowledge platform) on urgent information was highlighted. Additionally, more flexibility of transport choice and planning processes, the enhancement of cooperation in developing countries as well as financing of long-term infrastructure projects were demanded.

As stated above, these results offer a basis for further in-depth analysis of the identified needs. First, it is necessary to evaluate and reflect these findings with the current literature on humanitarian logistics. Here it should be clarified in detail which challenges have already been noticed within the scientific community and which approaches and solutions have been found there. Secondly, the findings have to be structured and weighted. A potential approach would be to generate dedicated follow-up surveys, e.g. explicit analysis on information systems used in the humanitarian logistics. A great advantage can be seen in bundling the identified needs with different areas of expertise within the scientific community. By this, domain-specific and adequate methodologies and study designs can be chosen, which are able to address the requirements of the affected research fields (e.g. also studies in the fields of customs or non-profit management issues may be followed respecting their specific research methods). Third, originating from the results of further in-depth analysis, specific research agendas shall be deduced and formulated.

Thus, future research projects promise to have an increased impact on the needs and challenges for all actors in humanitarian supply chains. It was shown that the integrated evaluation of practitioners’ needs of both the humanitarian and commercial actors provides a differentiated recognition of existing and new challenges in humanitarian supply chains and supports an application-oriented research. These results should be understood as a first step in order to identify existing challenges and action needs in a multi-perspective view. It offers first approaches of further in-depth analysis within the identified action needs.

ACKNOWLEDGMENTS

We would like to thank the Humanitarian Logistics Council of the BVL (German Logistics Association) and its members. The survey could have not been realized without the council as a cross-sectoral platform for humanitarian logistics and the support of its member. As the survey was partly executed during the flood in Pakistan, we would like to emphasize the great support of and cooperation with the humanitarian organization members of the council.

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