Performance measurement in humanitarian logistics: a customer-oriented approach

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PERFORMANCE MEASUREMENT
IN HUMANITARIAN LOGISTICS: A CUSTOMER-ORIENTED APPROACH

ABSTRACT

Purpose
The purpose of this research is to develop a performance measurement framework that takes into account the key stakeholders of the logistics departments or personnel in humanitarian organisations. It reflects their views and characteristics in adapting the balanced scorecard to this environment. The key stakeholders are identified using the stakeholder salience framework by Mitchell et al. (1997).

Design/methodology/approach
This is a conceptual paper that includes an extensive literature review on stakeholders, customers and performance measurement in humanitarian supply chains.

Findings
Beneficiaries are the customers that are the reason for the existence of a humanitarian supply chain. Donors are the stakeholder group with the highest salience due to the greatest amount of power. Both groups have their own interests, creating a challenging environment for performance measurement. Standard business tools such as the balanced scorecard have to be adapted accordingly to be useful in this environment.

Research limitations/implications (if applicable)
This paper is conceptual and the proposed framework will have to be tested empirically.

Practical implications (if applicable)
The proposed framework can help humanitarian organisations focus their supply chain optimisations on the aspect of performance that are most relevant to their key customer groups.

Original/value
The research brings together the complexities of humanitarian supply chains with the increasing customer focus that can be seen in commercial service supply chains. Based on an assessment of stakeholder salience, the difference in key customer groups is analysed. The resulting framework provides indications for balancing their diverging needs.

Keywords: humanitarian logistics, supply chain management, stakeholder theory, customer focus, performance measurement, balanced scorecard, structured literature review

1. INTRODUCTION

Humanitarian logistics (HL) involves various parties including governments, military, non-governmental and commercial organisations that are widely different in their size, aims, structure and knowledge (Argollo da Costa et al. 2012, Van Wassenhove 2006). The customers in a humanitarian supply chain (HSC) are both donors and beneficiaries; the suppliers are both donors and actual paid suppliers (Charles et al. 2010, Oloruntoba and Gray 2009). This is a more complex structure than in a commercial context where suppliers are being paid and customers pay for the good and services they receive. Without a clear goal from a single key stakeholder group, such as the bottom line in commercial operations, finding the strategic position necessary for the development of supply chain management (SCM) is challenging. Performance measurement (PM) in particular becomes difficult as various stakeholder groups define performance in different ways. However, seeing the growth in demand for HL, it is essential to enable organisational learning based on PM.

Due to the importance of stakeholders in HL, this paper will employ an approach based on stakeholder theory to develop a PM framework. This paper adopts a structured literature review to determine the salience of stakeholder groups of the logistics departments or personnel within humanitarian organisations. Using the stakeholder salience framework by Mitchell et al. (1997) it is possible to identify the key stakeholder group(s). Their definitions of performance, the parts of the supply chain that are visible to them, and other characteristics drawn from the literature review then form the foundation of the development of a PM framework. This paper contributes to current research on PM in HL by adding a stakeholder perspective. This can help practitioners recognise which elements of performance are important for their most salient stakeholder groups.

Section two provides an introduction to stakeholder theory in HL. The research design is discussed in Section three. The results of the literature review are presented in Section four. Section five offers a discussion of the findings in relation to PM, while Section six develops a PM framework based on the views of the stakeholder groups with the highest salience. Section seven provides a conclusion.

2. STAKEHOLDER THEORY IN HUMANITARIAN LOGISTICS

Stakeholder theory (ST) stems from literature on corporate social responsibility, organisation theory, strategic planning and systems theory (Freeman 2010). ST states that each organisation has relationships with groups that either affect its decisions or are affected by them, the stakeholders. A stakeholder is "*any group or individual who can affect or is affected by the achievement of the organisation's objectives"* (Freeman 2010). Attention is being paid to stakeholders not just because that will in turn maximise shareholder profit, but because of their own intrinsic value (Phillips et al. 2003). ST is concerned with the way their relationships influence the processes and outcomes, both for the organisation and the stakeholders (Jones and Wicks 1999). It is important to note that all the stakeholders' claims are considered to be of value (Donaldson and Preston 1995). This is opposed to a strict shareholder view where the financial considerations of one group that wants a high dividend are the primary concern and other views are not considered.

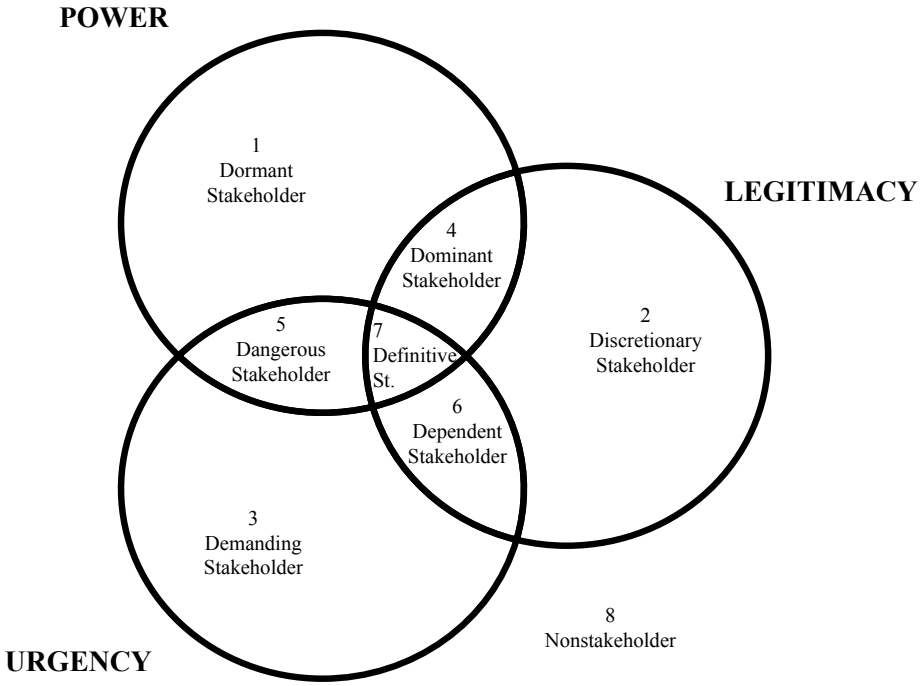

Figure 1: *Stakeholder typology (source: Mitchell et al. 1997, p. 874)*

While ST is popular, it is often unclear who and what really counts, as there is no ranking of their priority which would make the theory more practical for managers and academics. One way to classify stakeholders is to categorise them into primary and secondary ones, with the former having an official or contractual relationship with the organisation whereas the latter only have a moral, informal relationship (Carroll 1993). An alternative way to classify stakeholders is according to three attributes: their power, the legitimacy of their claim, and its urgency as illustrated in Figure 1 (Mitchell et al. 1997). A stakeholder that possesses more of these attributes simultaneously is said to be more salient. The authors also outline ways to interact with the eight different stakeholder types that can be identified in this manner. Balancing the demands of different stakeholder groups is an important role of the HSC manager, as it is with any other manager (Oloruntoba and Gray 2009, Schilling 2000). However, it is important to note, that the salience of a particular stakeholder group is not always the same. Stakeholder salience also depends on the issue under investigation and the reasons for applying ST (Phillips et al. 2003). Therefore, the typology given here cannot provide a general theory on stakeholder salience in regards to the HL department or personnel. The attributes will vary depending on the specific disaster, programme and organisation. This literature-based approach provides indications, but empirical data is needed to adapt it to different situations.

3. RESEARCH DESIGN

A structured literature review has been selected as a suitable approach to connect academic thought from a variety of backgrounds and to extract the criteria of stakeholder salience from the existing body of literature. A systematic or structured review has its origins in medicine where it is used to amalgamate evidence from several studies in order to provide advice to practitioners based on an exhaustive review of available evidence (Bryman 2012). A variety of HL studies are in existence, and can be used to draw conclusions regarding stakeholder salience, if surveyed methodically in a structured literature review. In social research, this methodology is used because the results it generates are more unbiased and comprehensive

than those of the traditional narrative review (Tranfield et al. 2003). This paper aims to develop a theoretical framework that can then be validated empirically. This theoretical grounding is particularly useful as HL still has a relatively narrow theoretical foundation (Richey 2009).

Millar (2004) recommends defining the purpose of the study, as well as the criteria for the selection of papers, before conducting the review. The purpose of this study is to determine the salience of groups that are stakeholders of the logistics department/ personnel of humanitarian organisations, particularly regarding performance measurement in that environment. To be included in the review, studies must be accessible through one of three database packages, contain the search terms "humanitarian supply chain", "humanitarian logistics", "relief logistics" or "relief supply chain", and must have been published in an academic journal . To capture the breadth of this relatively young field, no further restrictions for example regarding research methodology or the time period in which the studies were published, were used.

A literature search was conducted using three database packages, Science Direct Freedom Collection, Emerald EMX 150 and EBSCO Business Source Premier. The results were filtered to only include journal papers. This initial search yielded 365 papers. In a next step, the titles, key words and abstracts were read and papers that were found to be about research areas other than HL were eliminated. This reduced the number of papers to 189. After a crosscheck between the results from the three databases, duplicates were removed, yielding a final number of 150 papers for further analysis.

Table 1. Numeric summary of literature search

Database	**EBSCO Business Source**	**Emerald**	**Science Direct**	**TOTAL**
Search results	81	132	152	*365*
Relevant papers	40	74	75	*189*
Papers analysed				***150***

Within the identified literature a search for stakeholders of HL departments or personnel was conducted. The stakeholder groups were established mainly based on six groups discussed by Kovacs and Spens (2007). However, it has to be noted that Kovacs and Spens (2007) take a network approach, which identifies actors. Not all stakeholders are actors. For example, the beneficiaries are stakeholders because they are affected by HL, but lack the purchasing power that would make them actors (Heaslip et al. 2012). Therefore, beneficiaries were added as a seventh stakeholder group. In addition, volunteers, field staff and headquarters were included to represent internal stakeholders, bringing the number of stakeholder groups to a total of ten. These terms have been chosen due to their prominence in the analysed papers; however it can be difficult to differentiate between them. The media, although not mentioned in Kovacs and Spens (2007), play a vital role in raising awareness and donations, as well as sometimes hindering operations (Van Wassenhove 2006) and were included as the final stakeholder group. Implementing partners that are used by humanitarian organisations to execute their programmes, were not included as a separate group, as there is a wide variance within that group, that cannot be captured adequately in a limited number of search terms as was necessary for this research. These eleven stakeholder groups present broad categories, which

might have further subgroups, such as military being split into national troops, UN peacekeepers and insurgents.

Each of the 150 papers was then scanned for any mention of each of the eleven stakeholder groups. Search terms were truncated when necessary, for example "beneficiar" to find "beneficiary" and "beneficiaries". Substitute search terms were also used, for example "press", "journalist" and "news" instead of "media". The results were only counted when reading the relevant passages revealed that they were indeed discussing this group as being affected by or affecting HL. Numeric results give an insight into the prevalence of this group in the literature and may enable some conclusions about the importance attributed to each of the groups. The qualitative part of the study then involved content analysis to capture the attributes assigned to each stakeholder group. Based on these attributes, the groups were then sorted into the stakeholder types described in the aforementioned framework (Mitchell et al. 1997).

4. STAKEHOLDERS IN HUMANITARIAN LOGISTICS

Table 2: Number of papers per journal

Journal Name	Number of Papers
Int. J. of Physical Distribution & Logistics Mgmt.	18
Journal of Humanitarian Logistics and SCM	18
International Journal of Production Economics	17
Socio-Economic Planning Sciences	16
Computers and Operations Research	8
Management Research News	8
Transportation Research Part E	6
Journal of Business Logistics	5
Procedia - Social and Behavioral Sciences	4
30 other journals	*50*

The 150 papers have been published in 39 different journals, with 18 each published in the *International Journal of Physical Distribution & Logistics Management*, and the *Journal of Humanitarian Logistics and Supply Chain Management* (see Table 2). The oldest papers dates back to 1996 and 93 of the papers have been published after 2010 (see Table 3). Each paper included between one and eleven stakeholder groups, with 69% of papers discussing five or less. This can be seen to indicate that many papers were highly specialised. A full summary of the papers and the stakeholder groups identified in each can be found in Appendix A.

Table 3: Number of papers per year

Year	Number of Papers	Year	Number of Papers
1996	1	2010	22
2006	5	2011	24
2007	5	2012	41
2008	1	2013	19
2009	23	2014	9

Figure 2 depicts the percentage of papers that discussed each stakeholder group. Beneficiaries were clearly the most prominent group, appearing in 79% of the papers. The ones that did not make any mention of them were usually highly quantitative studies, for example on vehicle routing. Unsurprisingly for publications on supply chain topics, suppliers featured in 60%. Another group to appear in over half of the publications were governments that provide the context for HL, often as donors, as well as contacts in the disaster area. Due to their importance as the second customer group, donors were represented in 49% of papers. Among the internal stakeholder groups, field staff was by far the most prominent. They were most commonly discussed as part of specific logistical issues that occurred in the field. 28% of papers discussed the role of headquarters although they tended to feature prominently when they were mentioned, and even less notice was given to volunteers. The latter might be explained by the unclear dividing lines between staff and volunteers at many NGOs. Other NGOs were discussed as partners, as well as competitors. The different roles they can play made this stakeholder group difficult to capture in the content analysis. 40% of papers featured them, ranging from a prominent discussion of potential partnerships, to casual mentions of the competitive environment. Only 29% of the sample discussed the role of the military, which can be attributed to the reluctance of many NGOs towards working with the military (Tomasini and Van Wassenhove 2009, Heaslip et al. 2012). It also shows HL as an area that is quite separate from military logistics, despite their similarities. A third of the papers mention the media as a stakeholder group, often linked to their influence on donors. Logistics providers are mentioned in only 30% of papers, which could be down to the lack of close relationships in an area that often organises transport on an ad hoc basis (Tomasini and Van Wassenhove 2009, Balcik et al. 2010).

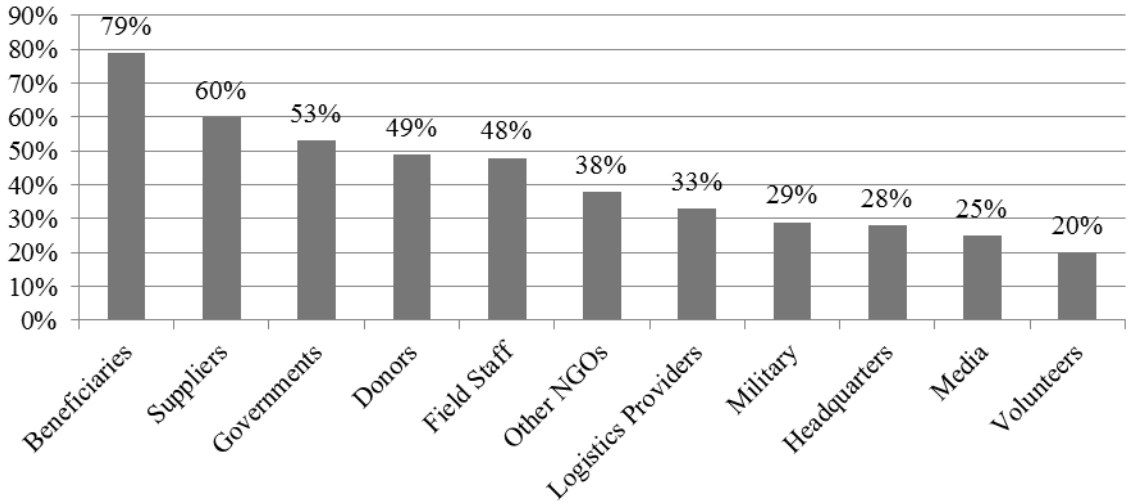

Figure 2: Share of analysed papers (n=150) that referred to each stakeholder group

Table 4 links the eleven stakeholder groups to the previously discussed stakeholder types and associated attributes based on the way they were described in the literature. A selection of quotes from papers within the sample will be used to reflect those descriptions. Based on these descriptions, the attributes of power, urgency and legitimacy are assigned to the groups. Finally, a stakeholder typology according to Mitchell et al. (1997) will be completed.

Table 4: Power, legitimacy and urgency by stakeholder group

Stakeholder Group	Power	Legitimacy	Urgency
Beneficiaries	Have neither a voice nor a way to exit this non-contractual relationship (Pettit and Beresford 2009)	Important, but often overlooked stakeholders (Oloruntoba and Gray 2006, Beamon and Balcik 2008)	Claims evolve over time as their situation changes (Charles et al. 2010), supplies need to be timely and of good quality (Ertem et al. 2012)
Suppliers	Essential partners (Balcik et al. 2010, Maon et al. 2009), stock-outs or long lead times can be a hazard to emergency responses (Lodree 2011)	Still very limited cooperation, in particular with smaller humanitarian organisations (Schulz and Heigh 2009, Pettit and Beresford 2009, Maon et al. 2009)	
Governments	Major donors of goods and money to humanitarian missions (Trestrail et al. 2009, Baldini et al. 2012), governmental structures or the lack thereof can further complicate HL, or ease them (Kovacs and Spens 2009, Ertem and Buyurgan 2011, Chandes and Pache 2010, Banomyong and Sopadang 2010)	Often an official call for assistance is the starting point of humanitarian aid missions (Kovacs and Spens 2009), all governments are involved in humanitarian aid as either donors, recipients or both (Kovacs and Spens 2009)	
Donors	Funding is limited and can be withdrawn at any time (Chandes and Pache 2010), intense competition for donor funding has developed (Beamon and Balcik 2008), good relationships with donors is paramount for the	Supply HL, but are also customers expecting a positive action to be achieved with their money (Beamon and Kotleba 2006), dual role of donors as both customers and suppliers adds a marketing element to HL (McLachlin et al.	Key aspect in decision making in HL (Sandwell 2011)

Stakeholder Group	Power	Legitimacy	Urgency
	continues existence of humanitarian organisations (Chandes and Pache 2010)	2010)	
Field Staff	High rates of staff turnover, little knowledge transfer, and a lack of qualified staff (Sandwell 2011, Kovacs and Spens 2009)	Contact people for international, as well as local parties, ranging from the beneficiaries to suppliers (Blecken 2010, Martinez et al. 2011)	
Other NGOs		Although they share similar goals, they are also in fierce competition for donations, media attention, as well as available resources (Beamon and Balcik 2008), can lead to strained, non-cooperative relationships (Oloruntoba and Gray 2009, Pettit and Beresford 2009)	Required for effective information flow (Baldini et al. 2012)
Logistics Providers	Increase in long-term cooperation (Balcik et al. 2010), successful examples of close long-term partnerships, for example between TNT and the World Food Program (Tomasini and Van Wassenhove 2009)	Relationships are usually formed very quickly and disbanded once a particular mission is over (Tatham and Kovacs 2010), ad hoc transport is still most likely (Jahre et al. 2009)	
Military	Can be both a benchmark and an important cooperation partner (Carroll and Neu 2009), issues of protecting the humanitarian space		Ability to respond rapidly in emergencies leads to higher involvement during the initial response, as the situation stabilises, their importance

Stakeholder Group	Power	Legitimacy	Urgency
	by remaining neutral, but at the same time not compromising on security (Tomasini and Van Wassenhove 2009, Heaslip et al. 2012)		declines (Banomyong and Sopadang 2010)
Headquarters	In centralised supply chains, power is concentrated at the headquarters (Gatignon et al. 2010, Martinez et al. 2011)	Trade-off between cost efficiency and immediate, specific action (Jahre et al. 2009)	Main line of contact to donors and other international stakeholders (Van Wassenhove and Pedraza Martinez 2012)
Media	Smooth interactions can enable HL to run much more efficiently and effectively (Heaslip et al. 2012)important role in facilitating information flows, as well as soliciting donations through reports (Charles et al. 2010)	Reporting will be focussed on their audience's preferences and not the needs of the humanitarian organisation (Overstreet et al. 2011)	
Volunteers	Can be difficult to coordinate their input, at worst they could even hinder operations (Van Wassenhove 2006)	Very different backgrounds, and commit for various amounts of time, making their involvement in HL challenging though highly welcome (Maon et al. 2009)	

Table 2 provides the full stakeholder typology as derived from the literature. There is at least one example of each stakeholder type. The definitive stakeholders are the donors and the headquarters of an organisation. Both possess power, legitimacy and urgency. However, beneficiaries as the other key customer group, as well as field staff as a crucial internal stakeholder group, are of similar importance, even though they do not possess the power to enforce their claims, making them dependent stakeholders. The split between internal and external stakeholders was very visible in the amount of literature devoted to them. While internal stakeholders are covered less frequently, they are still essential for the topic of PM. They will be the ones implementing a PM system, collecting data and utilising it. Based on this stakeholder typology, a stakeholder focussed PM framework can now be developed.

Table 5: Stakeholder typology in humanitarian logistics

Stakeholder type	Attributes	Stakeholder groups
1 Dormant	Power (P)	Logistics providers, suppliers
2 Discretionary	Legitimacy (L)	Volunteers
3 Demanding	Urgency (U)	Other NGOs
4 Dominant	PL	Governments
5 Dangerous	PU	Military, media
6 Dependent	UL	Beneficiaries, field staff
7 Definitive	PLU	Donors, headquarters

5. PERFORMANCE MEASUREMENT IN HUMANITARIAN LOGISTICS

The findings of the structured literature review, namely the stakeholder typology, can be applied in various contexts. Here, it is applied in the context of performance measurement (PM). There have been several reviews of PM in HL (see for example Abidi and Klumpp 2013, Van der Laan et al. 2009, Beamon and Balcik 2008). As pointed out by Abidi et al. 2013), definitions of success in HL differ between stakeholder groups. This makes performance in HL a particularly promising area of research based on the stakeholder typology developed above.

PM in HL is largely based on the same principles as in commercial logistics (Van der Laan et al. 2009). However, there are some key differences. Most importantly, non-profit organisations do not have the financial bottom line as their primary performance measure (Kaplan 2001, Speckbacher 2003). There is no one key stakeholder group that insists on the profitable operation of the business like the shareholders do in commercial entities. This complicates PM as several stakeholder groups with varying definitions of good performance are involved in HL. As has been shown above, salience of the stakeholder groups varies, so not all of them are equally important for PM.

A wealth of logistics and SCM PM literature exists and is reviewed in various papers (see for example Beamon 1999, Griffis et al. 2007, Akyuz and Erkan 2010, Shepherd and Gunter 2005). There are various approaches to PM that account for more than purely financial performance indicators. The Supply Chain Operations Reference (SCOR) model follows a standard management process spanning all interactions from the supplier's supplier to the customer's customers (plan, source, make, deliver, return) and was developed specifically to facilitate effective communication across organisational boundaries in the supply chain (Supply Chain Council 2014). Beamon (1999) proposes a three-part PM framework based on resource performance metrics (inventory holding cost, resource utilisation etc.), output performance metrics (sales, on-time deliveries, manufacturing lead time etc.) and flexibility metrics (highest possible output, shortest possible delivery lead time etc.). The Balanced Scorecard (BSC) takes into account a financial perspective, as well as a customer perspective, a learning and growth perspective and an internal business processes perspective (Kaplan and Norton 1992). It has been applied in supply chain contexts (Brewer and Speh 2000, Bhagwat and Sharma 2007). In addition, the BSC has also been applied in a non-profit context (Kaplan 2001). Several studies of PM in HL have also taken it as a starting point (see for example de

Leeuw 2010, Schulz and Heigh 2009, Van der Laan et al. 2009). The BSC is used as a basis for the framework developed here because of its versatility, the previous work that indicates applicability in the context of HL, the relative ease of use, which will be important in the operational environment of HL, as well as its ability to balance various components that contribute to performance. This latter factor is of particular importance in a study that emphasises the differences between different stakeholder groups.

The BSC is used widely, but not without criticism. For example, companies might also wish to include social and environmental factors (Epstein and Wisner 2001). This would also be of particular importance in a humanitarian context. Another important topic in commercial SCs has been the need to implement measures that go beyond one company to reflect the growing importance of long-term strategic perspectives and SC partnerships (Epstein and Wisner 2001, Atkinson et al. 1997). Given the complex network of stakeholders in HSCs, this would be a prominent feature, particularly with regards to services. With this background, developing a performance measurement system for HL will not only benefit humanitarian organisations, but lessons from this research work might also be transferrable to other SCs.

The importance of donors and beneficiaries as definitive and dependant stakeholders has been highlighted. Previous research has shown that the customer perspective in a BSC for HL has to include both donors and beneficiaries to provide any reasonable means for PM (de Leeuw 2010). However, the importance of the customer is not limited to this perspective in HL. The internal business process perspective also involves the customer groups as they provide important input, as well as receiving output. Such bi-directionality is typical of supply chains that include a strong service element (Sampson 2000). Without the co-creation of services by customers, the supply chain cannot function. The learning and growth perspective should also be customer focussed, as customer relationship management is among the key skills for logisticians in this area (Kovacs et al. 2012, Kovacs and Tatham 2010). Finally, the financial perspective lacks the key measurement of the bottom line in comparison to for-profit organisations. Therefore it becomes more ambiguous. Organisations tend to have a variety of different approaches to financial management (de Leeuw 2010). However, the close interaction with donors features prominently and it is noted that finances are managed tightly to satisfy donor scrutiny (de Leeuw 2010, Schulz and Heigh 2009). At least one of the key customer groups therefore features in all four of the BSC's perspectives. Although Kaplan (2001) recognised the importance of customers in non-profit organisations and restructured the BSC accordingly, this deep penetration of a customer-centric view is new.

For PM in humanitarian supply chains, particularly when recognising the importance of services, taking a stakeholder perspective will therefore mean more than just splitting the BSC's customer perspective into two to satisfy both donors and beneficiaries. A true focus on customers will have to reach further than that. In order to achieve that, a humanitarian organisation has to be aware of the way the supply chain looks from the customers' perspective (Maull et al. 2012).

The donors will see performance mainly through the organisation's reports and media reports on the overall disaster response, which may or may not feature a particular organisation. They are likely to get this information about many different humanitarian organisations and will base their donation behaviour on it. PM should therefore be done in terms of what the donor or the potential donor can see and is informed about, in order to ensure maximum donations in a highly competitive market. This could include outcome measures that show the improved situation of the beneficiaries, or input/output measures that capture the efficiency of the supply chain. However, it has to be kept in mind that a large part of the supply chain is invisible to the donors.

The same is true for beneficiaries. They will have little awareness of or interest in the wider workings of the supply chain. They can in many cases compare the outputs of several humanitarian supply chains; however their sources of information can be unreliable and biased, for example due to a perceived association of a humanitarian organisation with a military force. Their PM will be based on criteria such as the speed of the initial response, or the responsiveness to urgent needs.

6. A FRAMEWORK FOR PERFORMANCE MEASUREMENT IN HUMANITARIAN LOGISTICS

Kaplan (2001) puts the organisation's mission at the top of his strategy map for non-profit organisations. Recognising the difficulties that many non-profit organisations have in clearly defining their mission, the proposed framework mirrors the BSC strategy map for for-profit organisations that states "Improve Shareholder Value" as its primary aim (Kaplan and Norton 2000). Here, it is replaced by "Improve Customer Value" which is then split into donor value and beneficiary value.

Figure 4 presents the proposed framework. The examples provided are based on case studies carried out by de Leeuw (2010). We introduce categorisation into two different groups for whom value is being created. The findings are separated in three columns. The first column presents aspects of donor value, the second column displays factors that are relevant for both customer groups, and the third column gives parts of beneficiary value.

	IMPROVE CUSTOMER VALUE		
	Donor Value		Beneficiary Value
Customer Perspective	Efficiency and effectiveness, cost monitoring, sustainability	Reliability	Quality and availability of goods and services, timely delivery, relevance to the circumstances
Internal Process Perspective	Acquisition & retention of donors, feedback to donors	Innovation, direct contact with the humanitarian organisation, excellent processes	Social/ cultural/ environmental awareness
Learning & Growth Perspective	Organisational learning and development, use of appropriate technology	Consistency despite personnel changes	Local leadership, quick adaptation to actual demand
Financial Perspective	Transparency, budgeting	Steady and timely financial flows	

Figure 3. A BSC strategy map for performance measurement in humanitarian logistics (adapted from Kaplan and Norton 1992)

The first level supporting the value creation for donors and beneficiaries is the *Customer Perspective.* From the previously discussed importance of the customer in the supply chain, this is to be expected. This level contains aspects of HL that each customer group values the most. These should be key measures of performance as it is relevant to customers. The next level is the *Internal Process Perspective.* This is important because the measures relevant to the customers can only be achieved by efficient and effective internal processes. There are also elements that each customer group values individually. While both require direct contact to the organisation at their end of the supply chain, social, cultural and environmental awareness is more important to beneficiaries. Donors are more concerned with figures regarding the acquisition and retention of donors. The *Learning & growth Perspective* ensures a sustainable creation of customer value. It supports the internal processes by developing and improving them. The beneficiaries' focus here will be more towards the local issues in the affected area, while donors are more concerned with the bigger picture, but both groups champion continuity. Finally, the *Financial Perspective* is essential as a foundation for all the other perspectives and therefore also for the creation and improvement of customer value. Both customers are concerned with it, as any HL activities need financial backing. However, the donors who provide the money are much more affected by this perspective. They need a level of transparency, as well as appropriate budgeting.

7. DISCUSSION AND CONCLUSION

Through a systematic review of academic literature on HL, the attributes ascribed to eleven different stakeholder groups of the logistics department/ personnel of humanitarian organisations have been determined. Based on their power, the legitimacy and the urgency of their claim with particular regard to PM in HL, the stakeholder groups were assigned to seven stakeholder types in a typology developed by Mitchell et al. (1997). This revealed that donors and beneficiaries are the two external stakeholder groups with the highest salience.

Based on these findings, a customer-centric approach to PM has been applied. This builds on research on service supply chains that also depend on high customer involvement. A framework has been proposed for PM in HL. The BSC that has previously been used in commercial supply chain PM, as well as in humanitarian contexts, forms its foundation.

The stakeholder perspective taken in the development of this framework has lead to customers no longer being confined to just one perspective in the BSC. Examples have been given of how measures in each of the four perspectives are relevant to one or both of the customer groups. Instead of putting the shareholder value on top of the strategy map, it was replaced by customer value in this framework. The *Customer Perspective* is the first layer that is helping ensure customer value for beneficiaries and donors. It is supported by the *Internal Process Perspective.* The *Learning & Growth Perspective* ensures a sustainable advantage. Finally, the *Financial Perspective*, while being relegated to the last rung compared to its prime position in a commercial environment, is still essential in providing the means needed for any humanitarian operation.

This study has several limitations. Regarding the systematic literature review, the number of reviewed papers is relatively small, many do not contain empirical evidence and they often build upon each other. Therefore, this paper can only provide a guideline, and the stakeholder typology presented here is to be followed up with empirical data in later research. The proposed framework for PM in HL needs to be tested empirically as well. So far, it has only been based on existing literature.

The proposed stakeholder framework can provide insights for managers in HL regarding the different influence each stakeholder group has. In relating HL issues to a wider body of literature on stakeholder management, challenges in HL could be handled through various well-published approaches that have been discussed regarding stakeholders in the business community, as well as in non-profit organisations in general. One application of the typology is shown in the discussion of a PM framework for HL. This can provide insights for practitioners regarding the diverging opinions of the key stakeholder groups concerning performance.

This study offers a foundation for future work to be done regarding both stakeholders in HL and PM. Further research should aim to empirically prove or refine the framework that has been developed here. The HL stakeholder typology can also be applied to issues other than performance measurement where the salience of stakeholder groups plays an important role. In the future, it would be desirable to gain insights from HL practitioners, as well as humanitarian organisations, to test and further refine the framework for specific organisations, programmes or disasters.

REFERENCES

Abidi, H., de Leeuw, S. and Klumpp, M. (2013) 'Measuring success in humanitarian supply chains', *International Journal of Business and Management Invention,* 2(8), 31-39.

Abidi, H. and Klumpp, M. (2013) 'Performance measurement in humanitarian logistics: a literature review', in Arnäs, P. O., Arvidsson, N., Bergqvist, R., Johansson, M., Pahlén, P. and Stefansson, G., eds., *NOFOMA*, Gothenburg, Sweden.

Akyuz, G. A. and Erkan, T. E. (2010) 'Supply chain performance measurement: a literature review', *International Journal of Production Research,* 48(17), 5137-5155.

Argollo da Costa, S. R., Gouvêa Campos, V. B. and Albergaria de Mello Bandeira, R. (2012) 'Supply Chains in Humanitarian Operations: Cases and Analysis', in Procedia, ed. *Proceedings of EWGT2012 - 15th Meeting of the EURO Working Group on Transportation*, Paris, Elsevier Ltd, 598-607.

Atkinson, A. A., Waterhouse, J. H. and Wells, R. B. (1997) 'A Stakeholder Approach to Strategic Performance Measurement', *Sloan Management Review,* 38(3), 25-37.

Balcik, B., Beamon, B. M., Krejci, C. C., Muramatsu, K. M. and Ramirez, M. (2010) 'Coordination in humanitarian relief chains: Practices, challenges and opportunities', *International Journal of Production Economics,* 126(1), 22-34.

Baldini, G., Oliveri, F., Braun, M., Seuschek, H. and Hess, E. (2012) 'Securing disaster supply chains with cryptography enhanced RFID', *Disaster Prevention & Management,* 21(1), 51-70.

Banomyong, R. and Sopadang, A. (2010) 'Using Monte Carlo simulation to refine emergency logistics response models: a case study', *International Journal of Physical Distribution & Logistics Management,* 40(8-9), 709-721.

Beamon, B. M. (1999) 'Measuring supply chain performance', *International Journal of Operations & Production Management* 19(3-4), 275-292.

Beamon, B. M. and Balcik, B. (2008) 'Performance measurement in humanitarian relief chains', *International Journal of Public Sector Management,* 21(1), 4-25.

Beamon, B. M. and Kotleba, S. A. (2006) 'Inventory modelling for complex emergencies in humanitarian relief operations', *International Journal of Logistics: Research & Applications,* 9(1), 1-18.

Bhagwat, R. and Sharma, M. K. (2007) 'Performance measurement of supply chain management: a balanced scorecard approach', *Computers and Industrial Engineering,* 53(1), 43-62.

Blecken, A. (2010) 'Supply chain process modelling for humanitarian organizations', *International Journal of Physical Distribution & Logistics Management,* 40(8-9), 675-692.

Brewer, P. C. and Speh, T. W. (2000) 'Using the balanced scorecard to measure supply chain performance', *Journal of Business Logistics,* 21(1), 75-93.

Bryman, A. (2012) *Social research methods,* 4th ed., Oxford: Oxford University Press.

Carroll, A. and Neu, J. (2009) 'Volatility, unpredictability and asymmetry: An organising framework for humanitarian logistics operations?', *Management Research News,* 32(11), 1024-1037.

Carroll, A. B. (1993) *Business and Society: Ethics and Stakeholder Management,* 2nd ed., Cincinnati: South-Western Publishing Co.

Chandes, J. and Pache, G. (2010) 'Investigating humanitarian logistics issues: from operations management to strategic action', *Journal of Manufacturing Technology Management,* 21(3), 320-340.

Charles, A., Lauras, M. and Van Wassenhove, L. (2010) 'A model to define and assess the agility of supply chains: building on humanitarian experience', *International Journal of Physical Distribution & Logistics Management,* 40(8-9), 722-741.

de Leeuw, S. (2010) 'Towards a Reference Mission Map for Performance Measurement in Humanitarian Supply Chains', in Camarinha-Matos, L. M., Boucher, X. and Afsarmanesh , H., eds., *Collaborative Networks for a Sustainable World: 11th IFIP WG 5. 5 Working Conference on Virtual Enterprises, PRO-VE 2010, St. Etienne, France, October 11-13, 2010*, Berlin: Springer, 181-188.

Donaldson, T. and Preston, L. E. (1995) 'The Stakeholder Theory of the Corporation: Concepts, Evidence, and Implications', *Academy of Management Review,* 20(1), 65-91.

Epstein, M. and Wisner, P. (2001) *Good neighbours: implementing social and environmental strategies with the BSC,* Massachusetts: Harvard Business School Publishing.

Ertem, M. A. and Buyurgan, N. (2011) 'An auction-based framework for resource allocation in disaster relief', *Journal of Humanitarian Logistics & Supply Chain Management,* 1(2), 170-198.

Ertem, M. A., Buyurgan, N. and Pohl, E. A. (2012) 'Using announcement options in the bid construction phase for disaster relief procurement', *Socio-Economic Planning Sciences,* 46(4), 306-314.

Freeman, R. E. (2010) *Strategic management : a stakeholder approach,* Cambridge: Cambridge University Press.

Gatignon, A., Van Wassenhove, L. and Charles, A. (2010) 'The Yogyakarta earthquake: Humanitarian relief through IFRC's decentralized supply chain', *International Journal of Production Economics,* 126(1), 102-110.

Griffis, S. E., Goldsby, T. J., Cooper, M. and Closs, D. J. (2007) 'Aligning logistics performance measures to the information needs of the firm', *Journal of Business Logistics,* 28(2), 35-56.

Heaslip, G., Sharif, A. M. and Althonayan, A. (2012) 'Employing a systems-based perspective to the identification of inter-relationships within humanitarian logistics', *International Journal of Production Economics,* 139(2), 377-392.

Jahre, M., Jensen, L. M. and Listou, T. (2009) 'Theory development in humanitarian logistics: a framework and three cases', *Management Research News,* 32(11), 1008-1023.

Jones, T. M. and Wicks, A. C. (1999) 'Convergent Stakeholder Theory', *Academy of Management Review,* 24(2), 206-221.

Kaplan, R. S. (2001) 'Strategic Performance Measurement and Management in Nonprofit Organizations', *Nonprofit Management & Leadership,* 11(3), 354-362.

Kaplan, R. S. and Norton, D. P. (1992) 'The Balanced Scorecard--Measures That Drive Performance', *Harvard Business Review,* 70(1), 71-79.

Kaplan, R. S. and Norton, D. P. (2000) 'Having trouble with your strategy? Then map it', *Harvard Business Review,* 78(5), 167-176.

Kovacs, G. and Spens, K. (2009) 'Identifying challenges in humanitarian logistics', *International Journal of Physical Distribution & Logistics Management,* 39(6), 506-528.

Kovacs, G. and Spens, K. M. (2007) 'Humanitarian logistics in disaster relief operations', *International Journal of Physical Distribution & Logistics Management,* 37(2), 99-114.

Kovacs, G. and Tatham, P. (2010) 'What is Special about a Humanitarian Logistician? A survey of logistic skills and performance', *Supply Chain Forum,* 11(3), 32-41.

Kovacs, G., Tatham, P. and Larson, P. D. (2012) 'What Skills Are Needed to be a Humanitarian Logistician?', *Journal of Business Logistics,* 33(3), 245-258.

Lodree, E. J. (2011) 'Pre-storm emergency supplies inventory planning', *Journal of Humanitarian Logistics and Supply Chain Management,* 1(1), 28-48.

Maon, F., Lindgreen, A. and Vanhamme, F. (2009) 'Developing supply chains in disaster relief operations through cross-sector socially oriented collaborations: a theoretical model', *Supply Chain Management,* 14(2), 149-164.

Martinez, A. J. P., Stapleton, O. and Van Wassenhove, L. N. (2011) 'Field vehicle fleet management in humanitarian operations: A case-based approach', *Journal of Operations Management,* 29(5), 404-421.

Maull, R., Geraldi, J. and Johnston, R. (2012) 'Service Supply Chains: A Customer Perspective', *Journal of Supply Chain Management,* 48(4), 72-86.

McLachlin, R., Larson, P. D. and Khan, S. (2010) 'Not-for-profit supply chains in interrupted environments: The case of a faith-based humanitarian relief organisation', *Management Research News,* 32(11), 1050-1064.

Millar, J. (2004) 'Systematic Reviews for Policy Analysis' in Becker, S. and Bryman, A., eds., *Understanding Research for Social Policy and Practice: Themes, Methods, and Approaches*, Bristol: Policy Press, 325-350.

Mitchell, R. K., Agle, B. R. and Wood, D. J. (1997) 'Toward a Theory of Stakeholder Identification and Salience: Defining the Principle of Who and What Really Counts', *Academy of Management Review,* 22(4), 853-886.

Oloruntoba, R. and Gray, R. (2006) 'Humanitarian aid: an agile supply chain?', *Supply Chain Management,* 11(2), 115-126.

Oloruntoba, R. and Gray, R. (2009) 'Customer service in emergency relief chains', *International Journal of Physical Distribution & Logistics Management,* 39(6), 486-495.

Overstreet, R. E., Hall, D., Hanna, J. B. and Rainer Jr, R. K. (2011) 'Research in humanitarian logistics', *Journal of Humanitarian Logistics & Supply Chain Management,* 1(2), 114.

Pettit, S. and Beresford, A. (2009) 'Critical success factors in the context of humanitarian aid supply chains', *International Journal of Physical Distribution & Logistics Management,* 39(6), 450-468.

Phillips, R., Freeman, R. E. and Wicks, A. C. (2003) 'What stakeholder theory is not', *Business Ethics Quarterly,* 13(4), 24-46.

Richey, R. G. (2009) 'The supply chain crisis and disaster pyramid A theoretical framework for understanding preparedness and recovery', *International Journal of Physical Distribution & Logistics Management,* 39(7), 619-628.

Sampson, S. E. (2000) 'Customer- supplier duality and bidirectional supply chains in service organizations', *International Journal of Service Industry Management,* 11(4), 348-364.

Sandwell, C. (2011) 'A qualitative study exploring the challenges of humanitarian organisations', *Journal of Humanitarian Logistics & Supply Chain Management,* 1(2), 132-146.

Schilling, M. A. (2000) 'Decades ahead of her time: advancing stakeholder theory through the ideas of Mary Parker Follett', *Journal of Management History,* 6(5), 224-242.

Schulz, S. F. and Heigh, I. (2009) 'Logistics performance management in action within a humanitarian organization', *Management Research News,* 32(11), 1038-1049.

Shepherd, C. and Gunter, H. (2005) 'Measuring supply chain performance: current research and future directions', 55(3/4), 242-258.

Speckbacher, G. (2003) 'The Economics of Performance Management in Nonprofit Organizations', *Nonprofit Management and Leadership,* 13(3), 267-281.

Supply Chain Council (2014) 'SCOR 11.0', [online], available: https://supply-chain.org/scor/11 [Accessed 20.01. 2014].

Tatham, P. and Kovacs, G. (2010) 'The application of "swift trust" to humanitarian logistics', *International Journal of Production Economics,* 126(1), 35-45.

Tomasini, R. M. and Van Wassenhove, L. N. (2009) *Humanitarian logistics, INSEAD business press,* Basingstoke: Palgrave Macmillan.

Tranfield, D., Denyer, D. and Smart, P. (2003) 'Towards a methodology for developing evidence-informed management knowledge by means of systematic review', *British Journal of Management,* 14(3), 207-222.

Trestrail, J., Paul, J. and Maloni, M. (2009) 'Improving bid pricing for humanitarian logistics', *International Journal of Physical Distribution & Logistics Management,* 39(5), 428-441.

Van der Laan, E. A., De Brito, M. P. and Vergunst, D. A. (2009) 'Performance measurement in humanitarian supply chains', *International Journal of Risk Assessment & Management,* 13(1), 22-45.

Van Wassenhove, L. N. (2006) 'Blackett Memorial Lecture Humanitarian aid logistics: supply chain management in high gear', *Journal of the Operational Research Society,* 57(5), 475-489.

Van Wassenhove, L. N. and Pedraza Martinez, A. J. (2012) 'Using OR to adapt supply chain management best practices to humanitarian logistics', *International Transactions in Operational Research,* 19(1/2), 307-322.

APPENDIX A

Year	Journal	Suppliers	Logistics Providers	Volunteers	Governments	Military	Media	Beneficiaries	Field Staff	Donors	Headquarters	Other NGOs	Number of Stakeholder Groups Mentioned
2013	Asian Journal of Shipping and Logistics	0	0	1	0	0	0	1	1	0	1	1	**5**
2013	Asian Journal of Shipping and Logistics	1	1	0	1	0	0	1	0	0	0	0	**4**
2013	Benchmarking: An International Journal	1	0	1	1	0	0	1	1	1	1	0	**7**
2009	Computers and Operations Research	0	0	0	1	1	0	1	0	0	0	1	**4**
2010	Computers and Operations Research	0	0	0	0	0	0	1	1	0	0	0	**2**
2011	Computers and Operations Research	1	0	0	0	0	0	1	0	0	0	0	**2**
2012	Computers and Operations Research	0	0	0	0	0	0	1	0	0	0	0	**1**
2012	Computers and Operations Research	0	0	0	0	0	0	1	1	0	0	0	**2**
2013	Computers and Operations Research	0	1	0	0	0	0	0	0	0	0	0	**1**
2014	Computers and Operations Research	1	0	0	0	0	0	1	0	0	0	1	**3**
2014	Computers and Operations Research	1	0	0	0	0	0	0	1	0	1	0	**3**
2012	Corporate Governance	1	0	0	1	0	0	0	0	0	0	0	**2**
2011	Disaster Prevention and Management	0	0	0	1	1	1	1	1	0	0	0	**5**
2012	Disaster Prevention and Management	1	1	0	1	1	1	1	0	1	0	1	**8**
2006	European Journal of Operational Research	0	0	1	1	1	0	1	1	0	0	0	**5**
2014	European Journal of Operational Research	1	0	0	0	0	1	1	0	0	0	0	**3**
2011	Expert Systems with Applications	1	1	0	1	1	0	0	0	0	0	0	**4**
2012	Expert Systems with Applications	1	0	0	0	0	0	0	1	0	1	0	**3**
2014	Expert Systems with Applications	0	0	0	0	0	0	1	0	0	0	0	**1**
2011	Interfaces	1	0	0	1	0	0	1	0	1	0	1	**5**
2013	International Journal of Disaster Risk Reduction	0	0	0	1	0	0	0	0	0	0	0	**1**
2006	International Journal of Logistics Management	0	0	1	0	0	0	1	1	1	0	1	**5**

Year	Journal	Suppliers	Logistics Providers	Volunteers	Governments	Military	Media	Beneficiaries	Field Staff	Donors	Headquarters	Other NGOs	Number of Stakeholder Groups Mentioned
2006	International Journal of Logistics Research and Applications	1	0	0	1	0	0	0	0	1	0	0	**3**
2010	International Journal of Logistics Research and Applications	1	0	0	1	0	0	1	1	1	1	1	**7**
2007	International Journal of Physical Distribution & Logistics Management	1	1	0	1	1	0	0	0	1	0	1	**6**
2007	International Journal of Physical Distribution & Logistics Management	0	0	1	1	0	1	1	1	1	0	1	**7**
2009	International Journal of Physical Distribution & Logistics Management	1	1	1	1	1	1	1	1	1	0	1	**10**
2009	International Journal of Physical Distribution & Logistics Management	1	1	0	1	0	0	1	0	0	0	0	**4**
2009	International Journal of Physical Distribution & Logistics Management	1	1	0	1	1	1	1	1	1	1	1	**10**
2009	International Journal of Physical Distribution & Logistics Management	1	0	0	1	1	0	0	0	0	0	0	**3**
2009	International Journal of Physical Distribution & Logistics Management	0	0	0	0	0	1	1	0	0	0	1	**3**
2009	International Journal of Physical Distribution & Logistics Management	1	0	0	1	1	0	1	1	1	0	1	**7**
2010	International Journal of Physical Distribution & Logistics Management	0	0	0	1	1	0	1	1	1	1	0	**6**
2010	International Journal of Physical Distribution & Logistics Management	0	0	0	0	0	0	1	1	0	0	0	**2**
2010	International Journal of Physical Distribution & Logistics Management	0	0	0	1	1	0	1	0	1	0	0	**4**
2010	International Journal of Physical Distribution & Logistics Management	1	0	0	0	0	1	1	1	1	1	0	**6**
2010	International Journal of Physical Distribution & Logistics Management	1	1	0	0	0	0	1	0	1	0	0	**4**
2010	International Journal of Physical Distribution & Logistics Management	1	0	0	0	0	1	1	1	1	1	1	**7**

Year	Journal	Suppliers	Logistics Providers	Volunteers	Governments	Military	Media	Beneficiaries	Field Staff	Donors	Headquarters	Other NGOs	Number of Stakeholder Groups Mentioned
2010	International Journal of Physical Distribution & Logistics Management	1	1	0	0	1	0	1	1	1	0	1	**7**
2010	International Journal of Physical Distribution & Logistics Management	1	0	0	0	0	0	1	0	1	0	0	**3**
2010	International Journal of Physical Distribution & Logistics Management	1	0	0	0	0	0	0	1	0	1	0	**3**
2011	International Journal of Physical Distribution & Logistics Management	1	1	0	0	0	0	1	1	0	0	0	**4**
2007	International Journal of Production Economics	1	0	0	1	0	0	1	0	0	0	1	**4**
2009	International Journal of Production Economics	1	1	0	1	1	1	1	1	1	1	1	**10**
2010	International Journal of Production Economics	1	0	0	1	0	0	0	0	0	0	0	**2**
2010	International Journal of Production Economics	1	1	1	1	1	1	1	1	1	1	1	**11**
2010	International Journal of Production Economics	1	1	1	1	1	1	1	0	1	0	0	**8**
2010	International Journal of Production Economics	1	0	0	1	0	0	1	1	1	1	0	**6**
2010	International Journal of Production Economics	1	1	0	1	1	1	1	1	1	0	1	**9**
2010	International Journal of Production Economics	1	0	0	0	0	0	1	0	0	0	0	**2**
2011	International Journal of Production Economics	0	0	0	0	0	0	1	0	0	0	0	**1**
2011	International Journal of Production Economics	0	0	1	0	0	0	1	0	1	0	0	**3**
2012	International Journal of Production Economics	1	1	0	1	0	0	1	1	1	1	1	**8**
2012	International Journal of Production Economics	0	0	0	0	0	1	1	1	0	0	0	**3**
2012	International Journal of Production Economics	1	0	1	1	0	0	0	0	0	0	0	**3**
2012	International Journal of Production Economics	1	1	0	1	1	1	1	1	1	1	1	**10**
2013	International Journal of Production Economics	1	0	1	1	1	1	1	1	1	0	1	**9**
2013	International Journal of Production Economics	1	0	1	1	0	0	1	0	1	0	0	**5**

Year	Journal	Suppliers	Logistics Providers	Volunteers	Governments	Military	Media	Beneficiaries	Field Staff	Donors	Headquarters	Other NGOs	Number of Stakeholder Groups Mentioned
2014	International Journal of Production Economics	1	1	0	1	0	0	1	1	1	1	1	**8**
2009	International Journal of Productivity and Performance Management	0	0	0	0	0	1	1	0	0	0	0	**2**
2012	International Journal of Productivity and Performance Management	1	1	1	1	0	0	1	1	1	1	1	**9**
2008	International Journal of Public Sector Management	1	0	1	1	0	1	1	0	1	0	1	**7**
2009	International Journal of Risk Assessment and Management	0	0	0	0	0	0	1	1	1	1	0	**4**
2009	International Journal of Services Technology and Management	1	1	0	1	1	1	1	0	1	0	1	**8**
2009	International Journal of Services Technology and Management	1	1	0	0	0	0	1	0	0	0	0	**3**
2009	International Journal of Services Technology and Management	1	1	0	0	0	0	1	1	0	1	1	**6**
2009	International Transactions in Operational Research	0	1	0	0	1	0	1	1	1	0	0	**5**
2012	International Transactions in Operational Research	1	1	0	0	0	0	1	0	0	0	0	**3**
2012	International Transactions in Operational Research	0	0	0	1	0	1	1	1	1	1	1	**7**
2009	Journal of Business Logistics	1	1	1	1	0	1	1	1	1	0	1	**9**
2012	Journal of Business Logistics	1	1	0	0	1	1	1	1	1	1	0	**8**
2012	Journal of Business Logistics	1	1	1	1	1	0	1	1	1	1	1	**10**
2012	Journal of Business Logistics	0	0	0	0	0	0	1	1	0	1	1	**4**
2013	Journal of Business Logistics	1	1	0	1	0	0	0	0	1	0	1	**5**
2011	Journal of Humanitarian Logistics and Supply Chain Management	0	0	0	1	0	1	0	0	0	0	0	**2**
2011	Journal of Humanitarian Logistics and Supply Chain Management	1	0	0	1	0	0	0	0	0	0	1	**3**
2011	Journal of Humanitarian Logistics and Supply Chain Management	1	0	0	0	0	0	0	0	0	0	1	**2**
2011	Journal of Humanitarian Logistics and Supply Chain Management	1	1	1	1	1	1	1	1	1	0	0	**9**
2011	Journal of Humanitarian Logistics and Supply Chain Management	0	0	1	0	1	1	1	0	1	1	1	**7**
2011	Journal of Humanitarian Logistics and Supply Chain Management	1	0	0	0	0	0	1	0	0	0	0	**2**
2011	Journal of Humanitarian Logistics and Supply Chain Management	0	1	0	0	0	0	1	1	0	1	0	**4**

Year	Journal	Suppliers	Logistics Providers	Volunteers	Governments	Military	Media	Beneficiaries	Field Staff	Donors	Headquarters	Other NGOs	Number of Stakeholder Groups Mentioned
2011	Journal of Humanitarian Logistics and Supply Chain Management	0	0	0	1	0	0	1	1	1	1	1	**6**
2011	Journal of Humanitarian Logistics and Supply Chain Management	0	0	0	1	1	0	1	0	1	0	1	**5**
2012	Journal of Humanitarian Logistics and Supply Chain Management	1	1	0	0	0	0	1	0	0	0	0	**3**
2012	Journal of Humanitarian Logistics and Supply Chain Management	0	1	0	1	0	0	1	0	1	1	1	**6**
2012	Journal of Humanitarian Logistics and Supply Chain Management	1	0	0	0	0	0	1	0	1	0	1	**4**
2013	Journal of Humanitarian Logistics and Supply Chain Management	0	1	0	0	1	0	0	0	1	1	0	**4**
2013	Journal of Humanitarian Logistics and Supply Chain Management	0	1	0	0	0	0	1	1	1	1	1	**6**
2013	Journal of Humanitarian Logistics and Supply Chain Management	0	0	0	0	0	0	1	0	1	1	0	**3**
2013	Journal of Humanitarian Logistics and Supply Chain Management	0	0	0	0	0	0	1	1	1	1	0	**4**
2013	Journal of Humanitarian Logistics and Supply Chain Management	0	0	1	1	0	0	1	1	1	0	0	**5**
2013	Journal of Humanitarian Logistics and Supply Chain Management	0	0	1	1	0	1	1	1	1	0	0	**6**
2010	Journal of Manufacturing Technology Management	1	1	0	1	1	0	1	1	1	0	1	**8**
2010	Journal of Network and Computer Applications	0	0	0	0	0	0	1	1	0	0	0	**2**
2011	Journal of Operations Management	1	1	0	1	0	0	1	1	1	1	1	**8**
2012	Journal of Operations Management	1	0	1	1	0	1	1	1	1	0	0	**7**
2012	Journal of Operations Management	1	0	0	0	0	0	1	1	1	1	1	**6**
2006	Journal of the Operational Research Society	1	1	1	1	1	1	1	1	1	1	1	**11**
2007	Management Research News	1	0	0	0	0	0	1	0	0	0	0	**2**
2009	Management Research News	0	0	0	0	1	0	1	0	1	0	0	**3**
2009	Management Research News	0	0	0	0	0	0	0	1	1	0	0	**2**
2009	Management Research News	0	0	0	0	1	0	1	0	1	0	0	**3**
2009	Management Research News	0	0	0	0	0	0	1	1	1	1	1	**5**
2009	Management Research News	1	1	0	1	1	0	1	0	1	1	1	**8**
2009	Management Research News	1	1	1	1	1	0	1	1	1	1	1	**10**
2009	Management Research News	1	0	0	1	1	0	0	1	1	0	0	**5**

Year	Journal	Suppliers	Logistics Providers	Volunteers	Governments	Military	Media	Beneficiaries	Field Staff	Donors	Headquarters	Other NGOs	Number of Stakeholder Groups Mentioned
2012	Omega	1	0	0	1	0	0	0	0	0	0	0	**2**
2011	OR Spectrum	0	0	0	0	0	0	1	1	0	0	1	**3**
2011	OR Spectrum	1	0	0	0	0	1	1	0	1	0	1	**5**
2013	OR Spectrum	1	0	0	1	0	0	1	0	0	0	1	**4**
2010	Papers in Regional Science	1	1	0	1	0	0	1	0	0	0	0	**4**
2012	Procedia - Social and Behavioral Sciences	0	1	0	1	1	1	1	1	1	1	1	**9**
2012	Procedia - Social and Behavioral Sciences	0	0	0	0	0	0	1	1	0	1	0	**3**
2012	Procedia - Social and Behavioral Sciences	1	0	0	1	0	0	1	0	0	0	0	**3**
2014	Procedia - Social and Behavioral Sciences	1	0	0	1	1	1	1	0	0	0	0	**5**
2010	Production and Operations Management	0	0	0	0	0	0	0	1	0	0	0	**1**
2011	Safety Science	0	0	0	1	1	0	0	0	0	0	0	**2**
2013	Safety Science	0	0	0	0	0	0	1	1	0	0	0	**2**
2014	Society and Business Review	1	1	0	1	1	0	1	0	1	0	0	**6**
2011	Socio-Economic Planning Sciences	1	0	0	0	0	0	1	0	0	0	0	**2**
2012	Socio-Economic Planning Sciences	0	0	0	1	0	0	1	1	0	1	1	**5**
2012	Socio-Economic Planning Sciences	0	0	1	1	1	0	0	0	0	0	1	**4**
2012	Socio-Economic Planning Sciences	0	0	1	0	0	0	0	0	0	0	0	**1**
2012	Socio-Economic Planning Sciences	0	0	0	0	0	0	0	1	0	0	0	**1**
2012	Socio-Economic Planning Sciences	0	0	0	1	0	1	1	0	0	0	0	**3**
2012	Socio-Economic Planning Sciences	1	0	1	1	0	0	1	1	0	0	0	**5**
2012	Socio-Economic Planning Sciences	1	0	0	0	0	0	1	0	1	0	0	**3**
2012	Socio-Economic Planning Sciences	1	0	0	0	0	0	0	0	0	0	0	**1**
2012	Socio-Economic Planning Sciences	1	1	0	1	0	0	0	0	0	0	0	**3**
2012	Socio-Economic Planning Sciences	1	1	1	1	0	1	0	0	0	0	0	**5**
2012	Socio-Economic Planning Sciences	1	0	0	1	0	0	1	0	0	0	0	**3**

Year	Journal	Suppliers	Logistics Providers	Volunteers	Governments	Military	Media	Beneficiaries	Field Staff	Donors	Headquarters	Other NGOs	Number of Stakeholder Groups Mentioned
2012	Socio-Economic Planning Sciences	0	0	1	0	0	0	1	1	0	0	0	**3**
2012	Socio-Economic Planning Sciences	0	0	0	0	0	1	1	0	1	0	0	**3**
2012	Socio-Economic Planning Sciences	1	0	0	0	0	0	1	0	0	0	0	**2**
2013	Socio-Economic Planning Sciences	1	1	0	0	0	0	0	0	0	0	0	**2**
2010	Supply Chain Forum	1	0	0	0	1	0	1	0	1	0	0	**4**
2006	Supply Chain Management: An International Journal	0	0	0	1	0	0	1	1	1	0	0	**4**
2009	Supply Chain Management: An International Journal	1	1	1	1	1	1	1	1	1	1	1	**11**
2011	Supply Chain Management: An International Journal	1	0	0	1	1	1	1	0	1	0	1	**7**
1996	Transportation Research Part A	1	1	0	1	0	0	1	1	0	0	0	**5**
2012	Transportation Research Part A	1	0	1	1	1	1	1	1	1	1	1	**10**
2011	Transportation Research Part B	0	0	0	1	0	0	0	0	0	0	1	**2**
2013	Transportation Research Part B	0	0	0	0	0	0	1	1	0	0	0	**2**
2011	Transportation Research Part C	1	0	0	1	0	0	1	0	0	0	0	**3**
2007	Transportation Research Part E	1	0	0	0	0	0	1	1	0	0	0	**3**
2012	Transportation Research Part E	0	0	0	0	0	0	1	0	1	0	0	**2**
2012	Transportation Research Part E	0	0	0	0	0	0	1	0	0	0	0	**1**
2013	Transportation Research Part E	1	1	0	0	0	0	0	0	0	0	0	**2**
2014	Transportation Research Part E	1	1	0	0	0	0	0	1	0	0	0	**3**
2014	Transportation Research Part E	0	1	0	1	0	0	1	0	0	0	0	**3**
	Total Number of Papers that Mention A stakeholder Group	**90**	**50**	**30**	**79**	**43**	**37**	**118**	**72**	**74**	**42**	**57**	