

PERFORMANCE MEASUREMENT IN HUMANITARIAN DISASTER RELIEF: THE LITERATURE REVIEW

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ABSTRACT

The humanitarian disaster relief is an operation activates as a response to disaster. The performances of a humanitarian disaster relief after a disaster, as well as perceptions of organizational performance are a key factor in humanitarian disaster relief because it reflects the government performance. Yet, the question about the performance of the organizations to fulfil these tasks is very complex due to volatile conditions and environmental variables in the site of the occurrence. This study reviews the establishment of performance measurement previously and the challenges to implement it in the real life.

Keywords: Humanitarian disaster relief, performance measurement development

1. INTRODUCTION

The humanitarian disaster relief is an operation activates as a response to disaster. A disaster is defined as a disruption of a community or society's functioning that causes extensive human, material, economic or environmental losses that surpass the capacity of the affected community or society to cope with the use of its own resources [1]. According to [2] database (2015), eight out of the top ten deadliest disasters have happened since 2003. This show the global demand for humanitarian assistance, especially with regard to disaster relief, is rising and will continue to rise [3], [4].

[5] state the humanitarian disaster relief tend to be unstable, prone to political and military influence, and inefficient due to lack of joint planning and inter-organizational collaboration. Humanitarian disaster relief deal with inadequate logistics infrastructure, along with shifting origins of and/or destinations for relief supplies without warning. Further, based on [6], [7], [8], [9], the donors often request their funds be spent on direct materials and food, and even at a particular disaster location, rather than on crucial but indirect services such as information systems, staff training, and/or disaster preparedness. Therefore, humanitarian disaster relief does not only deal with delivering goods, materials or information to the point of consumption for the purpose of alleviating the suffering of vulnerable people, but also to manage and provide what is presume value to donors and other stakeholders.

The performances of a humanitarian disaster relief after a disaster, as well as perceptions of organizational performance are a key factor in humanitarian disaster relief. The ability to deliver the proper goods to meet the right people at the right place at the right time and in the right quantities is a core organizational function (Russell, 2005). Since logistics is critical for relief operations,

performance measurement of the supply chain has become vital for all humanitarian organizations involved in disaster management [9].

The actual performance of operations after a disaster and the perception's performance delivered through the media are key issues for the humanitarian logistics. The achievement of the organization goals becomes the focus of the government's interest, as it reflects also the government performance, and also donors would like to know how well did the organization actually perform [10]. However, the question about the performance of the organizations to fulfil these tasks is very complex due to volatile conditions and environmental variables in the site of the occurrence of a disaster and is still not common in the humanitarian context [11]. The problem of how to measure the performance of an organization in a disaster is much more difficult because lack of metrics in the humanitarian sector. The causes are many and varied, ranging from organizational culture to the lack of infrastructure and appropriate technology. As of 2010, only 20 percent of humanitarian organizations consistently monitored and reported their performance [12].

There are many efforts have been made to obtain standards, indicators and parameters that can be implemented to measure and improve the performance of organizations in humanitarian disaster relief operations. Performance measures in the humanitarian sector have been mostly qualitative. The same beneficiaries were initially assessing the efficiency of an organization to address disasters. Nevertheless, the perception of the beneficiaries may be affected by cultural factors and individual circumstances of the disaster [13]. As noted by several authors like [14], [4], [15], [9], [8], [16], some concepts of supply chain in the industry and in the military field share similarities with humanitarian logistics and therefore some tools and methods developed for supply chains maybe can be adapted to humanitarian disaster relief. However, the number of studies related to performance measurement in humanitarian disaster relief is still low [17], indicate that this field have high potential to be explored and need to be further study.

2. HUMANITARIAN DISASTER RELIEF AND THE PERFORMANCE MEASUREMENT DEVELOPMENT

While performance measurement has long been recognized as an important competitive advantage [18], [19] and a critical element to improving the efficiency and effectiveness of commercial supply chains, measuring performance in a structured and standardized way unfortunately is still not common in the humanitarian context [11]. The first publications related to performance measurement in humanitarian disaster relief was published by the Fritz Institute in 2003 [20]. The research actuality did not focus on specifically on performance measurement but more on humanitarian logistics as a comprehensive area of research. Since the Asian Tsunami occurred in 2004 and Hurricane Katrina in the U.S. in 2005, logisticians from different countries and branches had drawn attention to the field of humanitarian logistics. The lesson learnt from the two incidents were; there was lack of recognition of the importance given to logistics, lack of professional staff to support the mission, inadequate use of technology, lack of institutional learning related to catastrophe victim rescue and limited cooperation between the humanitarian players. Thus, in support the humanitarian disaster relief, a foundation for new strategies and actions has been derived; and among the strategies and actions that were derived is performance measurement. As stated by [4]:

“In general, humanitarian relief organizations have focused on getting the job done and have put little effort into performance measurement other than reporting to donors on the amount of relief and usage of funds for a given relief operation....thus The Plan-Do-Check-Act improvement process that is commonly used in the private sector could be quite useful when applied to humanitarian logistics.”

Since the years 2005 and 2006, more activities and researches have dealt with performance measurement in humanitarian disaster relief [21]. [22] also did mention about performance measurement in a book of “Humanitarian Logistics”. Although performance measurement is not a main part of this publication but the importance of performance measurement has been addressing during “Accountability identifies who is responsible for actions within the process and how well they are performed.” However, the Key Performance Indexes (KPIs), scorecards or other instruments which allow a measurement of performances have never been presented. As of 2010, only 20 percent of humanitarian organizations consistently monitored and reported their performance [12] and in the year of 2012, performance measurement was still an innovative topic for logisticians in the humanitarian sector.

Performance measurement in humanitarian disaster relief requires a fundamental definition of humanitarian performance. Humanitarian performance as remark by [23], is “*the effective collective performance of a complex system of international, national and locally-based organizations, which works to save lives, alleviate suffering and maintain human dignity both during and in the aftermath of man-made crises and natural disasters, as well working to prevent and strengthen preparedness for the occurrence of such situations.*” The definition above gives an impression that measuring performance in humanitarian logistics relief is more than collecting indicators or metrics because it involves a complex system which includes several organizations and actors. In addition, performance measurement should not only focus on the end of relief process, but also on former processes because the performance of these processes influences the overall performance, as well.

The increased frequency and severity of natural and manmade disasters, the costs involved in humanitarian supply chain operations as well as the growing competition for scarce resources and donor funding, make performance measurement vital for all organizations involved in disaster management [24], [25]. The performance measurement can inform decision makers to make better decisions, to improve performance and to provide accountability [26]. Performance measurement also provide feedback on agency performance and help redirect resources more effectively [24]. Yet, performance measurement systems have not been systematically implemented in the humanitarian supply chain. As mention by [24] and [12], only 20 percent of all humanitarian organizations consistently measure the performance of their supply chains, while 25 percent use a few performance indicators and 55 percent of all humanitarian organizations do not monitor any form of performance indicators for their supply chain.

In 2014, [27] evaluated the current state of research on performance management in humanitarian logistics relief chain. From their research, they conclude three findings which are:

1. Even though there were a variety of approaches in performance measurement, but, only a few had been empirically tested,
2. Result-based management is often very difficult to implement in humanitarian organizations, as it is often problematic to determine the relationships between the inputs and activities as well short-term outputs, midterm outcomes and long-term outcomes, and
3. Standard indicators are often unsatisfactory, as cultural nuances that have an impact on activities are often not adequately accounted for.

[28] and [27] also affirms that despite various performance measurement frameworks and indicators exist for traditional supply chains, the distinct characteristics of the humanitarian environment cause many of these to be inappropriate or irrelevant. However, performance measurement frameworks from the commercial sector still are a useful starting point for the non-profit sector, and thus for the humanitarian organizations [29].

3. METHODOLOGY

The authors refer to the secondary data that being published by online journal and articles to prepare this study. The selected journal and articles prior to humanitarian disaster relief helps to identify the previous development of performance measurement. The findings, therefore, can strengthen the need for further study in performance measurement for humanitarian disaster relief in order to improve the current development.

4. DATA ANALYSIS

From the secondary data that being published by online journal and articles, it was found that there is a few performance measurement has been establish in humanitarian disaster relief. However, the established of performance measurement was not peripheral to use due to several situation, as presented by [27] and [28] above. Some of the model also not been tested in the practice. Table 1 show the performance measurement that has been establish but peripheral to use in humanitarian disaster relief context and Table 2 show the applicability of the model (balance scorecard) in humanitarian disaster relief.

Table 1: Existing Performance Measurement in Humanitarian Disaster Relief

Performance Measurement Model	Description	Authors
Supply Chain Operations Reference (SCOR) Model	Driven by five core management process; Plan, Source, Make, Deliver and Return. It considers all essential supply chain partners and focus all processes along the entire supply chain. Advantage: Better communication between supply chain participants, processes to be measured are defined and standardized documentation and metrics. Disadvantage: High abstraction, overall performance measurement still difficult, no flexibility when changing measures, high workload to apply the model to practice.	the Supply Chain Council (1996)
Balance Score Card	Supports the corporate strategy with balanced measures and consists of four areas: customer, finance, internal processes, innovation and growth. It also incorporates human dimensions for measuring performance. Its objective is to establish causalities between the performances of each analytical axis. Advantage: Flexible adaptation of metrics, Standardization along supply chain and Management strengthened through better control Disadvantage: No coordination along the supply chain, No optimization of interfaces, Causes and effects are not visible, Lack of	Kaplan and Norton (1990)

	synchronization of management processes and metrics.	
Performance Prism	<p>The alternative approach to the Balanced Scorecard. The principle of performance prism is to understanding the needs of the key stakeholders is a precursor to the development of strategy. Strategy must then be developed in the light of these stakeholder needs and in light of the organization making a profit or delivering its purpose.</p> <p>Advantage: reflects new stakeholders (such as employees, suppliers, alliance partners or intermediaries) who are usually neglected when forming performance measures, considers the stakeholders' contribution to performance and ensures that the performance measures have a strong foundation</p> <p>Disadvantage: offers little about how the performance measures are going to be implemented, some measures are not effective in practice and short of logic among the measures, no sufficient link between the results and drivers</p>	Neely, Adams, and Kennerley (2002)
The EFQM Excellence Model	<p>Proposed to help organizations to assess their progress to excellence and continuous improvement, and is based on their eight fundamental concepts of excellence: results orientation; people development and involvement; customer focus; continuous learning, innovation and improvement; leadership and constancy of purpose; partnership development; management by process and facts; and public responsibility.</p> <p>Advantage: using of self-assessment approach in order to organization excellence, strengthen the sense of quality and feedback from results helps to improve enablers</p> <p>Disadvantage: did not give guidelines how to design and conduct effective performance measurement, no focus / priorities and tendency to bureaucracy</p>	European Foundation for Quality Management (EFQM) (1991)
The SMART Performance Pyramid	<p>The primary aim of the performance pyramid is to connect through organization's strategy with its operations by translating objectives from the top down (based on customer priorities) and measures from the bottom up.</p> <p>Advantage: attempt to integrate corporate objectives with operational performance</p>	Cross and Lynch (1992).

	<p>indicators and manage performance measurement strategically</p> <p>Disadvantage: does not provide any mechanism to identify key performance indicators, fails to specify the form of the measures and does not explicitly integrate the concept of continuous improvement</p>	
<p>Kanji Business Excellence Measurement System (KBEMS)</p>	<p>The KBEMS is formed by Part A and Part B of the Performance Measurement System and these parts should be applied simultaneously always, since they form a single and complementary view of organizational performance. KBEM is intended for the measurement of performance from the internal stakeholders' point of view, whereas the KBS evaluates the performance from the external stakeholder' perspective. Afterwards internal and external scores are incorporated to calculate the final organizational performance excellence index (OPI) that provides an aggregate measure of the organizations excellence in managing all the CSFs.</p> <p>Advantage: highlights improvement opportunities and suggests some improvement strategies for the best possible use of the organization's resources, can help organizations to develop, cascade and implement an organization's strategy</p> <p>Disadvantage: s primarily designed for senior managers to provide them with an overall view of performance, does not offer explicit guidance on how to develop and implement a PM system effectively</p>	<p>Kanji, 2002</p>

Table 2: The Applicability of the Model (Balance Score Card) in Humanitarian Disaster Relief
[30]

Author(s) and year of publication	Type of publication	Development of a framework	Input from practice	Framework tested in practice
Moe et al. (2007)	Conceptual paper	Yes	Yes	No
Schulz and Heigh (2009)	Case study	Yes	Yes	No
De Leeuw (2010)	Multiple case study	Yes	Yes	No
Schiffing and Piecyk (2014)	Literature review	Yes	No	No
Abidi and Scholten (2015)	Conceptual paper	No	Yes	Not applicable

5. CONCLUSION

The humanitarian disaster relief is an operation activates as a response to disaster. The operation of this relief tend to be unstable due to inadequate logistics infrastructure and uncertainty condition along with it. The performance of the relief unit during the humanitarian disaster relief in the other hand, always become the key issue as it reflects to the government performance. Yet, to develop a performance measurement that are practical to be implement during the disaster is quite challenging due to uniqueness of the disaster itself; disasters vary in terms of environmental factors, material demands as well as logistical requirements. This makes it very difficult for organizations to plan ahead as they cannot transfer their experience from one operation onto another. As the performance measurement is a powerful tool that can measure and increase the efficiency, therefore, it is hope a well establish and practical of performance measurement can be establish in the future.

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