**The Humanitarian Supply Chain Practices in Malaysia**

**Abstract**

Humanitarian supply chain performance (HSCP) derived supportive actions Ensure the implementation of supply chain strategies that help achieve supply chain management objectives. Despite the frequent occurrence of disasters and their huge impact, humanitarian organizations today are still under constant pressure to improve their performance. Based on this need, this research aims to test humanitarian supply chain practices applicable to humanitarian supply chain performance. By adopting humanitarian supply chain practices, it will enable humanitarian supply chain organizations to evaluate and improve humanitarian supply chain performance. This concept paper will discuss the impact of humanitarian supply chain practices, namely the visibility, agility, and utilization of information technology (IT), which in turn attracts a series of improvements to improve humanitarian supply chain performance. Furthermore, the proposed framework is practical in any setting because it is an integral result of previous literature and research. Quantitative survey methods will be used. Research in these areas will provide insights for humanitarian supply chain organizations facing similar problems in other settings.

**Keywords:** Humanitarian Supply Chain Performance (HSCP), Visibility, Agility, Information Technology Utilization (IT)

**Introduction**

Humanitarian assistance aims to save lives, alleviate suffering, and protect human rights after natural disasters or other crises. Humanitarian assistance aids people who have suffered the consequences of natural disasters, armed conflicts, and silent disasters (Haavisto and Goentzel, 2015). They can be natural, such as storms, earthquakes, floods, and tsunamis, or man-made, such as wars, conflicts, terrorist attacks or serious accidents (Youn et al., 2013).

Over the past ten years, accumulated losses from global disasters have been staggering. The United Nations Office for Disaster Risk Reduction (UNISDR) and the Center for Research on Disaster Epidemiology (CRED) in Belgium stated that between 1995 and 2015, there were 3,062 floods and 43% of all-natural disasters, including geophysical disasters. Like earthquakes and volcanoes. Therefore, this is an alarming trend of flood disasters worldwide. Due to environmental uncertainty, disaster relief work is highly uncertain and complex, so it must be properly managed to achieve better and faster response. Therefore, responding to disasters is crucial because it drives the successful execution of rescue efforts (Yadav and Barve, 2015).

Malaysia is located in Southeast Asia, bordering Thailand, Brunei, and Indonesia, and consists of 13 states and three federal territories. Geographically, it is in a stable area outside the ring of fire and south of the main hurricane route. Malaysia has experienced 51 natural disaster events in the past two decades (1998, August 2018). Compared to the situation in Malaysia, similarly, the most destructive natural disaster in Malaysia is flooding. Every year, floods are the most frequent and most important injury, and cause considerable loss of life, epidemics, damage to property and crops, and other losses (Chan et al., 2012). The resulting catastrophic consequence is that, in channelling the humanitarian supply chain, humanitarian organizations involved in rescue operations, helping victims, and providing effective relief supplies are very important. Therefore, in recent years, the humanitarian rescue supply chain has increasingly attracted the attention of professionals, such as academics, to improve the rescue operations performance of humanitarian organizations. Eloquently, causing the increase in the incidence of natural disasters corresponding to earthquakes, floods, hurricanes, and has increasingly attracted the attention of all the countries of the world.

The commercial supply chain network aims to maximize supply chain surplus, while the associated HSC network seeks to provide maximum relief to victims of unexpected and unpredictable events (Dubey et al., 2015a; Pettit and Beresford, 2009). Many difficulties are related to common complications found in organizations operating in the non-profit sector. Furthermore, the distinctive characteristics inherent in the disaster relief atmosphere make measuring the performance of the disaster relief chain more challenging. Efficient performance will help professionals in the supply chain. In this case, the decision-making process of humanitarian organizations (HO) can help improve the effectiveness and effectiveness of rescue operations, and demonstrate the performance of the supply chain, thus improving the visibility of process data and disaster response responsibilities, and technology (IT) upgrades.

Due to climate change, various natural disasters have accelerated, in addition to triggering armed conflicts, but also causing economic losses (Debarati GuhaSapir and Hoyois, 2012). Although the demand for humanitarian assistance will increase year by year, the elements of humanitarian resources no longer meet these needs (da Costa et al., 2014). On the contrary, NGOs are currently dealing with pressure to expose the special impact of their software and humanitarian operations (Beamon and Balcik, 2008). For a long time, the loss of the overall performance signal has been a problem in controlling the humanitarian supply chain (Abidi et al., 2014). However, a common general performance measurement system is no longer established because of the high cost of the method and the unique environment of non-profit organizations (Abidi et al., 2014). Therefore, more research is needed to provide unique records based primarily on actual international issues within the humanitarian community. These records involve overall performance measurement, because overall performance measurement can provide basic records about updates within the delivery chain. Therefore, they can become key features to control the supply chain process (Bhattacharya et al., 2014). Due to the rapid increase in the frequency of natural disasters in recent years, regardless of the development contribution in this field, the urgent need for general-purpose high-throughput HSC is still a problem (Kovács and Spens, 2010; Tabaklar et al., 2015).

The purpose of this study is to examine the impact of humanitarian supply chain practices on the performance of humanitarian supply chain organizations in Malaysia. Information technology utilization (IT), visibility, and agility are designated as applied practices. This highlights the critical need to solve hard-wired issues that will affect organizational performance. Performance measurement can provide important information about supply chain improvement. Therefore, they are important functions in supply chain management. Subsequently, good coordination improves the flow of information between chains actors. It also helps to achieve greater control over the visibility of the data and resources, the agility related to responsiveness, and the flexibility of relief operations and employment opportunities. Enhanced data technology is used as a catalyst to improve the performance of humanitarian supply chain organizations in rescue and recovery operations. Therefore, the coordination of the organization has generated many benefits, that is, having greater capacities, resources, and management capabilities, thus effectively creating the organization's capacity to respond to disasters.

**Literature Review**

**Humanitarian Supply Chain Performance**

It has long been recognized that performance measurement and management are essential for the effective and economic management of supply networks (Youn et al., 2013). Performance measurement and management contribute to continuous performance improvement and strategy formulation (Kaplan, 2001), control of organizational learning, management development, and operational direction with strategic goals (Abidi et al., 2020). Compared with the commercial supply chain, the performance measurement and management of the humanitarian supply chain is still at an early stage.

According to (Abe and Ye, 2013; Kovács and Spens, 2007), the performance of the humanitarian supply chain will be determined by the delivery time, the quality of the delivered materials, the reduction of loss of life, and the reduction of out-of-stock necessary relief supplies, equipment and other necessities. On the contrary, humanitarian supply chain performance is collectively described as incidental actions that confirm the implementation of supply chain strategies and ensure that supply chain management goals are achieved (Maestrini et al., 2017).

**Humanitarian Supply Chain Practices**

*Humanitarian Supply Chain Practices (Visibility)*

Visibility can be defined in several ways, for example, depending on the approach of information exchange and information features (accuracy, time time, preparation and access speed). From another point of view, Hofstede (2003) has access and access to information related to all actors along the supply chain and information related to the product requested by them, loss, noise, delay, distortion, etc. Define access to information. Therefore, Harri Lorentz et al., (2016) emphasized the importance of visibility in the supply chain to avoid and reduce the effects of confusion.

Visibility in humanitarian supply chains provides information on disaster assistance processes that are believed to affect the coordination of the disaster stage (Roh et al., 2015). And the stock deficit helps adjust the effort of the reaction (Stapleton et al., 2010). It was also emphasized by an organization that also includes the importance of the accuracy of information and the evaluation of the need assessment (Charles et al., 2010). For example, if a sudden disaster occurs, the supply chain can be visible in humanitarian contexts, so the needs of the beneficiaries, mainly accommodation, food and medicines necessary to meet within 72 hours. Information and evaluation reports should be as accurate as possible (Banomyong et al., 2019).

For greater visibility, humanitarian organizations understand how processes (from the perspective of data and the transfer of resources) interact with other actors along the humanitarian supply chain it has to do (Tomasini and Wassenhove, 2009). Therefore, the affected population must be duly informed of the determination that affects them, and the corresponding organization must handle the accuracy and speed of the information correctly (Chandes and Pache, 2009).

*P1*: There is a positive relationship between visibility and humanitarian supply chain performance

*Humanitarian Supply Chain Practices (Agility)*

Humanitarian supply chain agility is usually defined as the ability to respond to unforeseen changes (Cozzolino et al., 2012). According to (Lee, 2004), the main goal of an agile supply chain is to quickly respond to short-term changes in demand (or supply), and it is important to smoothly handle external interruptions.

Organizational agility represents the strength of the interaction between the organization and the market in the context of the supply chain (Feizabadi et al., 2019). In this study, agility describes the company’s ability to adapt to changes caused by disasters that occur in different locations, based on the premise (Tatham and Pettit, 2009) that they emphasize that the real challenges facing HSCM will depend on the occurrence of disasters. The size, type and region of the country. For example, floods and earthquakes damaged the country's physical infrastructure and caused many problems along the route of relief supplies (Kabra et al., 2015).

Supply agility is an attribute that is considered a source of competitive advantage in the supply chain (Dubey et al., 2015b). From a humanitarian point of view, the agility of the supply chain enables the auxiliary chain network to cope with the uncertainty of demand or supply while reducing operational risks. Supply chain agility can have a positive impact on operational performance (Gligor and Holcomb, 2012). Supply chain agility can also prepare the supply chain network to quickly recover from external forces that contribute to delivery and service levels (Lee, 2004).

*P2*: There is a positive relationship between agility and humanitarian supply chain performance

*Humanitarian Supply Chain Practices (Information Technology Utilization)*

The The importance of effective use of technology can be found in much literature, but it is enormous in relation to the supply chain (Kaplan, 2001). To make the changes necessary to provide logistics information, people will use information technology (IT) or information systems (IS) (Gunasekaran and Ngai, 2003). It should include intranets, networks, and extranets, as well as EDI, computer networks (such as WWW), and enterprise resource planning (ERP), rather than using data mining and data warehouses (Gunasekaran and Ngai, 2003).

IT is defined as any technology that supports the collection, processing, distribution and use of information, consisting of hardware, software, data and communication technologies (Ngai et al., 2011). Research results emphasize that the use of IT in HSC has become the basis for better performance, allowing people to evacuate disaster-affected areas, thus reducing the impact of disasters on the local population (Kabra and Ramesh, 2015; etc., 2011). Furthermore, the use of technology does not refer to any specific type of information technology, but rather includes people, processes, practices, and organizational environment (Maiers et al., 2005).

Proper use of IT is the key to effective information transmission and communication between organizations involved in HSCM. This helps companies by responsively reallocating resources to track market demand. The effective and efficient management of aid measures by shortening the response time to unforeseen events and market changes (Fernando et al., 2018) shows the profound impact of information technologies on social and socioeconomic development.

Although new technologies are often seen as the easiest way to promote supply chains, acceptable and more practical uses of existing technologies cannot be ignored (Patterson et al., 2003). From a humanitarian point of view, the use of the latest technology is a less important part of the competition itself, although its use is becoming more and more important because it provides benefits in terms of saving inventory and providing chain control. These systems have made a positive contribution to the overall response; they are not the only or major technologies that may be used (Kabra and Ramesh, 2015).

*P3*: There is a positive relationship between information technology utilization and humanitarian supply chain performance

Graphical user interface

Description automatically generated with low confidence

Figure 1: Conceptual Framework

Based on Figure 1, a link is developed among humanitarian supply chain visibility, humanitarian supply chain agility, and humanitarian supply chain information technology utilization with HSC performance.

**Methodology**

The type of research design used in this study is causality and survey methods are used. Questionnaires will be distributed to 420 respondents. They will be made up of experienced volunteers of the reliefs organizations that involved in humanitarian relief in Malaysia. The questionnaire used in this study is divided into four parts. The type of question is measured using closed and Likert scales. The independent variables used in this study are visibility, agility, information technology utilization, and the dependent variable is humanitarian supply chain performance. This study will adopt quantitative research methods and use questionnaire surveys to obtain data. The selection of the overall sample will be based on the convenience sampling techniques. Therefore, the research questions and hypotheses will be tested using regression analysis.

**Conclusion**

The practices of the humanitarian supply chain are directed to a set of actions to improve and strengthen humanitarian supply chain organizations. In this field of research, there is a system to attract research attention. From the Perspective of HSCM, we will determine the practice of humanitarian supply chains of the adjustment point and will focus on the importance of understanding and examining the context of the humanitarian supply chain. Companies can benefit from the exchange of information by adjusting the visibility of the exchange of information and the mechanisms of government to the context and the transaction ratio of the transactions. Examples of earnings are insured external resources and avoid reducing the cost of transaction, cooperative capacity and adverse dependence and opportunistic behaviour. In addition, it is important to identify the problem and the current opportunity of the supply chain.

An agile relief effort will benefit the organization to minimize response time and improve the flexibility of aid distribution. Then, the generation of IT system helps soften and reduce risk. Therefore, it can be distributed effectively, and help helps that can improve the performance of the tissues of the humanitarian supply chain. Subsequently, these practices suggest that good humanitarian supply chain practices should be applied to a better post-resulted performance.

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