

THE IMPACT OF USING OUTSOURCING STRATEGY BY HUMANITARIAN ORGANIZATIONS ON LOGISTICAL PERFORMANCE: AN EMPIRICAL INVESTIGATION FROM A DEVELOPING COUNTRY

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Abstract

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This paper empirically investigates the potential benefits of outsourcing humanitarian logistics activities to commercial logistics service providers (LSPs) to improve rescue missions in the Al Zaatari Syrian refugee camp in Jordan. The study uses a quantitative research approach, a survey data set of 140 questionnaires was collected from the managers and managerial staff dealing with logistical activities. First, a comprehensive review of related literature was performed to guide this research and then to test the main hypotheses of this study, correlation and regression analysis were carried out. The findings confirmed that humanitarian organizations in Al Zaatary camp can get benefits from collaborating with LSPs on delivering primary logistic services (shelter, food, medicine, transportation, etc.) (Nurmala, de Leeuw, & Dullaert, 2017). Moreover, the findings showed that outsourcing is preferred in the response phase (Vega & Roussat, 2015). This paper contributes to the growing body of knowledge on humanitarian logistics in ways that fills a gap by empirically investigate the phenomenon, as well as it is considered well timed in the context of the still current situation due to political instability in the region. As far as the authors are aware, this research represents the first study within the humanitarian logistics sector in Jordan.

Keywords: Outsourcing, Humanitarian Logistics Performance, Commercial Logistics, Logistic Service Provider, Al Zaatari Refugee Camp, Roles of LSP

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1. INTRODUCTION

Since the 70s of the last century, global disasters either natural or man-made have increased in frequency and severity. According to the International Disaster Database EM-DAT, 798 country-level disasters occurred since 2019, the primary data indicates the impacts were on 146 countries, 127 million of affected people, 32,425 deaths, and US\$131 billion of economic damage (<https://www.emdat.be/>). In these circumstances, the importance of humanitarian organizations (HO's) is beyond questioning as they play a vital role in disaster relief operations to diminish perceptible losses in human life and the economy. For these organizations to achieve their humanitarian goals, fruitful management of the humanitarian supply chain (HSC) and logistics operation is needed (Kovács & Sigala, 2021; Nurmala, de Leeuw, & Dullaert, 2017). According to Thomas and Kopczak (2005), logistics in this context is defined as "the process of planning, implementing and controlling the efficient, cost effective flow and storage of goods and materials as well as related information from the point of origin to the point of consumption" (p. 2).

Recently, it has been acknowledged that humanitarian logistics (HL) is largely carried out by aid organizations without special logistical skills (Baumgarten, 2010), and a sum up to 80% of HSC expenses and approximately between 40% and 60% of disaster efforts are due to logistical activities (Long & Wood, 1995; Jahre, Jensen, & Listou, 2009). This lead to worldwide outcries to improve the logistical performance of HO's. Thence, academics and practitioners highlighted the problems and challenges faced by HSCs, including poor logistic infrastructure, humanitarian aid material flow control, slow coordination and response, HSC design and human resources turnover, and procurement logistics (Chandes & Paché, 2010; Dubey et al., 2018; Gralla, Goentzel, & Van de Walle, 2015; Liu, Duffy, Whitfield, & Boyle, 2010; Rifai, 2018; Tomasini & Van Wassenhove, 2009).

In such a turbulent environment, logistic service providers (LSPs) initiatives have spurred by the growing trend of outsourcing logistic activities in HSC (Bealt, Barrera, & Mansouri, 2016; Gossler, Wakolbinger, & Burkart, 2020; Hoxtell, Norz, & Teicke, 2015; Kovács & Spens, 2009; Sigala & Wakolbinger, 2019; Thomas & Fritz, 2006; Vega & Roussat, 2015; Van Wassenhove, 2006), where commercial logistic service providers (CLSPs) collaborate to provide supply chain services together with HO's (Heaslip, 2013). In this matter, it has been known that the nature of humanitarian logistics is somehow similar to the nature of commercial logistics (CL). All traditional logistics activities for emergency aid projects in crisis and conflict regions are covered by humanitarian logistics, however, the focal points of these activities are, for example, basic infrastructure, water, training, housing, basic medical care, nutrition, and others (Blecken, 2006, 2010). On the contrary, commercial logistics organizations are more involved in the Worldwide Logistic-Sector and have gained much more specialized experiences than HO's, therefore, CLO's are considered to be highly developed and advanced when compared to humanitarian logistics, and HO's can draw valuable lessons on how to make their

overall performance, especially relief operations, more efficient and effective (Baharmand, Comes, & Luras, 2017; Bealt et al., 2016; Cozzolino, Wankowicz, & Massaroni, 2017; Gossler, Wakolbinger, Nagurney, & Daniele, 2019; Kovács & Spens, 2007; Nurmala et al., 2017; Scholten, Sharkey Scott, & Fynes, 2010; Schulz, 2009; Van Wassenhove, 2006).

In this vein, the potential contribution of the benefits sought from the commercial sector is expected to be highly positive (Nurmala et al., 2017; Sigala & Wakolbinger, 2019). Nevertheless, evidence-based studies on how such a partnership could benefit the humanitarian sector are still scant, and the role of outsourcing in managing HSC has not yet been researched adequately by academics and practitioners in this field. In addition to that, very few studies have illustrated what and why organizations should outsource (Baharmand et al., 2017; Bealt et al., 2016; Cozzolino et al., 2017; Vega & Roussat, 2015). This led to an urgent call for more empirical researches in this regard (Bealt et al., 2016; Dufour, Laporte, Paquette, & Rancourt, 2018; Gossler et al., 2020; Kovács & Spens, 2011; Vega & Roussat, 2015).

With this in mind, the current field study attempts to fill the gap by empirically investigating the relevance and benefits sought out of outsourcing logistics operations in the humanitarian supply chain and further analyzing the potential resources and activities that can be outsourced.

Motivated by the increasing need to provide support to refugees, the Al Zaatari Syrian refugee camp in Jordan, the largest Syrian refugee camp in the world (Serrato, 2014), was selected as a research setting due to the ongoing Syrian refugee crisis. The United Nations has declared that the Syrian crisis is the worst refugee crisis to date (Murphy, Woodman, Roberts, & McKee, 2016). About 5.6 million displaced refugees suffered from the civil armed conflict in Syria, the majority live in Jordan, Lebanon, Turkey, Iraq, and Egypt. The camp, close to Jordan's northern border with Syria, has become emblematic of the displacement of Syrians across the Middle East following its establishment in 2012. According to The United Nations High Commissioner of Refugees (UNHCR, 2020), Jordan currently hosts approximately 657,628 Syrian refugees registered in the Jordanian governances (Mercy Corps, 2018), of them nearly 20% are registered in the Al Zaatari camp and the last majority have self-settled in other areas in Jordan, this massive flux of refugees increased Jordan's population with 10% putting a huge stress on local resources; Jordan is a resource-poor, food-deficit country with limited agricultural land, no energy resources and scarce water supply (WFP, 2020). To tackle these problems in Al Zaatari camp, Jordanian Government collaborated with international humanitarian organizations through the Jordanian Ministry of Social Development. Hence, Al Zaatari camp is now under the joint administration of the Syrian Refugee Affairs Directorate and UNHCR. It is also a collaborative effort between the donor community, UN agencies, e.g., World Food Program (WFP), international and national non-government organizations (NGOs), community-based organizations, and Jordanian host communities (Alhusban, Alhusban, & Al-Betawi, 2019; Nurmala et al., 2017; UNHCR, 2020).

Initially, the large inflow of NGOs providing assistance was distributed somewhat randomly, and eventually, some refugees received donations multiple times a day from various sources and many others go without. Wang, Wu, Liang, and Huang (2016) stated that most relief efforts are led by the government or non-profit organizations (NPOs) specialized in humanitarian relief operations. On the contrary, these efforts must be made, led, and managed by private institutions that can deal with logistics problems of transportation, storage, and distribution on daily basis in order to improve the effectiveness and efficiency of the efforts exerted. And as previously mentioned, most of the aid agencies do not have specialized expertise in dealing with logistical activities, therefore, private sector institutions (commercial organizations) must play an important role in relief operations and logistics activities in the camp's supply chain in order to leverage the camp's logistic services offered in terms of efficiency and effectiveness.

The structure of the research paper is organised as follows. In Section 2, a comprehensive review of related literature is given, the research design and methodology that have been used to conduct empirical research are introduced in Section 3. In Section 4, we present our research hypothesis testing and results, followed by a discussion on empirical findings in Section 5. Finally, the concluding remarks and recommendations are offered in Section 6.

2. LITERATURE REVIEW

2.1. A comparison between commercial and humanitarian logistics

Literature has shown many definitions for HL that share the same concept. According to Van Wassenhove (2006), it is the “processes and systems for mobilizing people, resources, skills, and knowledge to help people affected by natural disasters or man-made disasters” (p. 476). In the broadest sense, HL can be defined as a process that strategically plans, purchases, transports, and stores goods and materials from the place of origin

to the place of consumption. The main aim of these strategic activities is to meet the needs of all beneficiaries in a cost-effective way (Thomas & Kopczak, 2005, p. 2). The two definitions confer the mandatory of locating and distributing relief products earlier and later (e.g., food, water, cures, shelters, etc.) to alleviate suffering for people in need (Murphy & Knemeyer, 2015).

HL is essential to humanitarian causes. In areas of catastrophes and disasters and rescue missions, logistics plays a major role in distribution and procurement, alertness and response to disasters; transportation, warehousing, and delivery; in addition to establishing offices in the target areas. The importance of logistics extends to include managing stocks by use of the supply chain. Its database is a useful and rich resource. When it comes to the speed and efficacy of suppliers and service providers, which are crucial in humanitarian causes, logistics has also a great influence in programs related to water and sanitation, food, housing, and health care (Thomas, 2003).

There are several resemblances in addition to differences in the priorities, structure, demand pattern, operating environment, and difficulty between HL and CL (Ertem, Buyurgan, & Rossetti, 2010; Van Wassenhove, 2006). HL represented by relief organizations works towards reducing human suffering, while the commercial sector focuses on minimizing costs and seeking profits. Humanitarian logistics strives to fulfil the critical needs of society, whereas commercial logistics tries to supply the public demand regardless of the cause or situation (Holguin-Veras, Pérez, Jaller, Van Wassenhove, & Aros-Vera, 2013; Day, Melnyk, Larson, Davis, & Whybark, 2012).

Despite the differences between the two types of logistics, CL can help develop and expand the reach and influence of humanitarian logistics if knowledge of CL was transferred and shared (outsourcing). In order to bridge the gap between the two areas and transfer experiences and knowledge, focusing on the similarities and common aspects between the two is essential. The following elements are shared between commercial and humanitarian logistics.

Table 1. Commercial and humanitarian logistics comparison

	<i>Commercial</i>	<i>Humanitarian</i>
Supply: meet customer needs	Determined specification	Indeterminate specification
Inventory	Manageable	Challenging to manage
Distribution	Easy	Difficult (Infrastructure mostly damaged)
Flow	Supply with demand matching	Procurement and demand uncertainties
Lead time	Shorter than HL	Longer than CL
Information system	Good information management	Manual process
Customer	Planned client reactivity	Customer response problematics
Demand	Confessional conditions, volume, and venue	Failure to request data
Objective	Increase earnings	Reduce lives loss
Agility: response to fluctuation	Relative stability in demand and supply	Essential — not stabile demand and supply
Adaptability	High flexibility to altering the environment	Problematic yet critical adaptability
Alignment: goals of partners	Significant	Crucial
Performance measure	Primarily used	Case to case basis

CL and HL have the same aim at satisfying the customer and make timely support delivered at the right cost. This common goal between the two types of logistics is not easily achieved (Gustavsson, 2003).

Notwithstanding the fact that HL is of great value, its presence in research and academic publications is insignificant, while CL takes the main

focus. Scholars, such as Abidi, de Leeuw, and Klumpp (2015), Altay and Green (2006), have attempted to reveal the causes behind the little interest in HL. Many reasons were attributed to the lack of extensive research on the topic. The lack of commercial profits and the low interest of companies and businesses are thought to be the two major reasons (Abidi et al., 2015).

Post the failure of rescue missions during the 2004 tsunami, the interest in HL increased leading researchers to investigate and study the topic. In the efforts to develop humanitarian logistics in 2006, Van Wassenhove thoroughly studied commercial and humanitarian logistics and established a model on how to apply and design logistics in crisis times.

The model of Van Wassenhove contains five components:

1. Personnel;
2. Knowledge aspects;
3. Business administration;
4. Financial resources;
5. Community (Van Wassenhove, 2006).

Oloruntoaba and Gray (2006) developed another model that highlights the humanitarian sector's supply chain (Abidi et al., 2015). Efforts continued with Kovács and Spens (2007) drafting a study comparing commercial and humanitarian logistics and delivering recommendations and proposals on experience and knowledge transition from the commercial to the humanitarian sector in 2007.

Two years later, Jahre and Jensen (2010) developed a model that highlights the significant and useful experiences and knowledge to be transformed from CL to HL. Other scholars, such as Davidson (2006) and Beamon and Balcik (2008), concentrated on HL effectiveness. Beamon and Balcik (2008) created a model for the productive storing of supplies in humanitarian projects. They also drew a comparison between the efficiency measurements in both commercial and humanitarian projects. Thomas (2003), Beamon (2004), and Aslanzadeh, Rostami, and Kardar (2009) made comparisons between the two logistics.

The similarities of commercial and humanitarian logistics promote the transfer of expertise and sharing between the two sectors and thus enhance the ability to outsource logistical services to LSP from the commercial sector. A successful partnership and a fruitful collaboration do not only stem from the similarities between humanitarian and business sectors, as illustrated by Nurmala et al. (2017), it also depends on the differences and the chance to complement one another. IT tools provided by the commercial sector and used to strengthen the humanitarian sector help promote the collaboration between the two sectors and vastly boost disaster relief efforts (Swaminathan, 2018) through accurate data gathering, modelling, and a system for notifications and communication (Akter & Wamba, 2019).

Despite the importance of sharing and collaborating between the commercial and humanitarian sectors, experience transmission from CL to HL is not highly evident. Lack of communication, scarcity of knowledge, and resource sharing dominate the relationship between both sectors (Salam & Khan, 2020; Tatham & Spens, 2011). In addition to that, aid coordination and collaboration are hindered by many factors including resource deficiency, disorganized environment, the number of agents involved, in addition to the lack of effort and motivation by the humanitarian organizations (Cruz-Castro, Vertiz-Camaron, & Apolonio-Oro, 2019).

The coordination of the flow of goods or services with the corresponding flow of information and communication is deemed to be the main

problem in HL. The reason for this is that these flows have to take place at the right time, in the right amount, in the right place, in the right quality, and at the right price (Rifai, 2018); therefore to insure a smooth and successful transfer of knowledge and experiences from one area to the other, it should rely on determining the main tasks of each sector in order to find out the correlations and similarities between the two.

According to McLachlin, Larson, and Khan (2009), CL and HL are different in their tasks and objectives. CL focuses on increasing efforts that exclude them from disaster areas where efforts are almost non-existent. Capital goods, consumer goods, finished goods, and commercial services are all supplied to commercial logistics to maximize benefits and provide services. HL, on the other hand, is not concerned with profit-making but with disaster relief and rescue missions. By focusing on saving and protecting people and providing them with their basic needs, the humanitarian sector requires food, medicine, clothes, water, shelter, and electricity supplies, as well as knowledge sharing. The hard conditions of the infrastructure, including bridges, roads, and airports, in times of catastrophes, require considerable effort from the humanitarian agencies who find the lack of support and the difficulty of transportation very challenging (McLachlin et al., 2009; Thomas, 2003).

HL differs from CL also in the insufficiency of logistics and distribution structure in the humanitarian sector. The lack of collaboration and cooperation inside the humanitarian sector itself proves to be a challenge to the progress and development of the area.

A number of researchers summarized the primary obstacles facing the coordination and cooperation inside the humanitarian logistics sector. According to Beamon (2004), Howden (2009), Thomas (2003), and Van Wassenhove (2006), the main difficulties are:

- 1) chaotic situations of infrastructure;
- 2) lack of communication and fragile information flow;
- 3) lack of coordination inside the logistics chain;
- 4) poor preparations for catastrophes and disasters;
- 5) unpredictable and inconsistent demand for relief supplies;
- 6) lack of effectiveness in the delivery of relief supplies;
- 7) competitiveness between relief organizations;
- 8) the sparseness of skilled logisticians;
- 9) uncovered demands caused by the scarcity of warehouses and transportation.

As for the obstacles in the face of progress and development in the HL, the heads of leading logistics HROs (human resources offices) outlined the five reasons at a meeting in Geneva in 2003:

1. *Corporate culture and frequent staff change:* employees are often changed in humanitarian agencies.
2. *Lack of collaboration:* rich experiences in times of disasters are rarely transferred or shared.
3. *Financing process:* donations and funds provided for relief measures and campaigns are checked for irregularities.

4. *Productive utilization of technology:* technology is not effectively used in humanitarian organizations. Technology is essential in knowledge and data transfer for humanitarian sectors, as well as development in approaches and new strategies (Gustavsson, 2003).

5. *Organizational learning:* feedback, reflections, suggestions, and recommendations are rarely provided and discussed after crises and relief missions.

HL can improve its performance and benefit from the shared experiences and knowledge of CL following a number of suggestions and recommendations:

1. Planning and control records: by using these records, delivery times can be minimized and enhanced.

2. Managing funds and donations: donations should be put together for stronger appeal.

3. Deeper understating of the economic, socio-economic, and political conditions of the region.

4. Regular communication.

5. Needs analysis: this formal process should be formed on experiences, historical information, and similar situations.

6. Collaboration and coordination between agencies and organizations: governments should get involved and collaborate more efficiently for better results and impact.

7. Impact assessment of the socio-economic situation.

8. Regional humanitarian coordination and interactions by establishing process standardization, maximizing and improving the upsides of different organizations.

9. Facilitating the local abilities and aptitudes.

10. Evaluation of the processes and procedures done by humanitarian organizations (Keskinocak, 2010).

11. Deepen related knowledge.

12. Optimize funding sources.

13. Boost investment in areas of communication and technology (Gustavsson, 2003).

2.2. Outsourcing and logistic service providers (LSPs) focused on the humanitarian sector

Nowadays, the trend of outside sourcing (outsourcing) in HSCs received great attention in both academia and practice (Ahmed, Najmi, Khan, & Aziz, 2019; Stevenson, 2010) alongside the role LSPs act as a key element in humanitarian relief operations. According to Lieb, Millen, and Van Wassenhove (1993), the term *outsourcing* was defined as “employing an outside company [frequently referred to the commercial sector] to perform some or all of the firm’s Logistical activities” (p. 35). According to the arranged financial plan and time frame (Akbari, 2018), the assumption behind such a trend derived from the fact that commercial organizations have traditionally been outsourcing their logistical activities since the 1990s (van Laarhoven, Berglund, & Peters, 2000). The process has been termed differently (“third-party logistics (3PL)”, “contract logistics”, “logistics alliances”) (Abidi et al., 2015, p. 36). The outsider party [logistic provider] could perform multiple tasks; historically, tasks ranged from transportation and warehousing operations (Vega & Roussat, 2015)

and gradually developed to encompass a wider array of added value services which as well includes distribution, inventory, control systems, “packaging, cross-docking and technology management” (Zacharia, Sanders, & Nix, 2011, p. 43).

Along with this vein, the literature shows that partnerships with commercial organizations are logical and mutually beneficial (Nurmala et al., 2017; Nurmala, de Vries, & de Leeuw, 2018). The corollary motives and reasons can be explained from at least two perspectives. On the one hand, both commercial and humanitarian supply chains are mostly alike; therefore, humanitarian relief chains can embrace skills, tools, knowledge, and methods developed by the commercial sector and improve their performance at global and local levels (Heaslip, 2013). In addition to that, studies suggest that for humanitarian organizations, cooperating with the reputable commercial organization can promote more benefits; for instance, fostering more creative solutions that would be tailored to a specific relief response or customer segment (Maon, Lindgreen, & Vanhamme, 2009; Van Wassenhove, 2006), sharing risks as well as benefits between partners (Selviaridis & Spring, 2007), and most importantly, reducing costs (Bardi & Tracey, 1991).

Further, Nurmala et al. (2018) noted that the performance of humanitarian-business collaborations in HL largely depends on the ability to increase its effectiveness and management capacity. As pointed out by Abidi et al. (2015) considering the complexity of logistic infrastructure, and the pressure put from donors, humanitarian organizations need specialized knowledge to enhance the inclusive effectiveness of the system during humanitarian actions. HOs relying upon private individual and institutions’ funding, and they provide high-quality relief services on a not-for-profit basis or based on cost recovery systems (Gossler et al., 2020; Vega & Roussat, 2015) thence, donors increasingly expect value in return for money and demand HOs to be more efficient, accountable, and transparent regarding their performance and its metrics (Kopczak & Johnson, 2007) to reach targeted beneficiaries in the shortest time possible (Nurmala et al., 2017).

On the other hand, commercial companies involved in logistic activities as LSPs side by side with HOs are trying to deliver value beyond profits for themselves, their potential customers, and also for society (Nurmala et al., 2017, 2018; Maon et al., 2009). Many studies discussed that participating in humanitarian operations may have impacts on the sustainability of the commercial entity (Rueede & Kreutzer, 2015; Maon et al., 2009). Meanwhile, others argued that this relationship could allow COs to express social responsibility in their company, the corporate social response (CSR) programs internally and externally to meet the increasing societal pressure (Bealt et al., 2016; Cozzolino, 2012; Gossler et al., 2020; Nurmala et al., 2018; Sigala & Wakolbinger, 2019). Other reasons for COs to take a role are return on investment (Binder & Witte, 2007) and learning from the humanitarian organizations, since HOs have a great experience working under pressure in uncertain environments dealing with front-line relief operation (Lu, Goh, & De Souza, 2013; Kusumasari & Alam, 2012) that would, in turn, expand COs profitability and agility (Nurmala et al., 2018). Last but not least, for

commercial organizations partnership with humanitarian organizations in aid programs and relief operations, preventing the effects of natural and man-made crises is a different important reason to maintain their businesses; disasters can adversely affect productivity levels and development and harm the environment of their potential customers (Maon et al., 2009). Finally, it is in the interest of commercial organizations to work with humanitarian organizations due to the fact that humanitarian organizations have a strong network of relationships with various actors, such as local governments, military, not-for-profit organizations, NGOs, international humanitarian organizations. That, in turn, will benefit commercial organizations wishing at strengthening their commercial position and building a stronger network of relationships with others (Kusumasari & Alam, 2012; Lu et al., 2013; Thomas & Fritz, 2006). Consequently, all efforts made by commercial organizations are justified to protect the various interests of stakeholders from the potential risks and enormous losses that could result from disasters.

With that being said, the important role of LSPs has arisen when humanitarian agencies were unable to offer some services, or their inability to provide these services in an optimal manner (Bealt et al., 2016; Heaslip, 2013). LSPs have a wider pool of technical knowledge, access to more data, faster response, adaptability to specific customer's needs, and even the ability and capacity to scale to respond to larger relief programs (Stoddard, 2009). Therefore, it has been widely acknowledged that LSPs often have the ability to improve HSC performance (Bealt et al., 2016) by providing logistic services with a significant value-added [managing the flow of products] in order to meet humanitarian needs (Sigala & Wakolbinger, 2019) in addition to supporting NGOs and government in response to relief operations. LSPs are defined by Hertz and Alfredsson (2003) as "external providers acting on behalf of a shipper to plan, coordinate and carry out logistics activities such as transport, storage and inventory management" (p. 140). The definition entails a business corporation in a partnership to deliver one type or more of logistic activities [e.g., transportation or distribution]. While other contributions were limited to finance. According to Nurmala et al. (2018), financial contributions are the most mutual form of service provided; however, if a partnership only offers financial contributions, the partners are not straight involved in any logistical activities; rather, providing goods and services involves them in humanitarian logistic activities.

Along with the increasing importance placed upon LSPs, their roles have evolved over time to become pivotal to contemporary logistics plans and developed to encompass more and more logistic services covering the whole process, or parts within it (Cruz-Castro et al., 2019).

The first role that LSPs play has been termed as *members*. According to Vega and Roussat (2015), LSP as a member is considered as an authentic side of the HSC network who involve in the fulfillment of logistic activities only in times of need, in that sense, their presence is not permanent, and therefore the roles that they are required to fulfill are not clearly defined. Meanwhile, other authors used the term *actor* to express the same meaning and function for this role (Kovács & Spens, 2009; Martinez, Stapleton, & Van Wassenhove, 2011).

The second role an LSP is ought to play is *integrators*, which means LSP is a member of the HSC and has to be integrated into the chain; the role usually proposes integrated solutions to customers on an operational level (Fabbe-Costes, Jahre, & Roussat, 2008; Cozzolino, 2012).

Another role that emerged from the literature is of a *tool*. This role proposes an LSP as a member of the HSC who fulfills specific tasks (e.g., transportation resources provider) and deemed at improving the overall performance of the chain (Fabbe-Costes et al., 2008; Vega & Roussat, 2015).

By introducing and resetting new roles in aid organizations, these roles strengthen and improve these organizations' disaster preparedness skills (Maon et al., 2009) and provide important experiences that are of benefit to both the humanitarian and corporate sector (Cozzolino, 2012).

Further, LSPs act to improve other roles on the side of the aforementioned, which are evolved based on the relationships between users and other organizations, for instance, the role of *logistic intermediary* historically involving organized logistical resource pooling activities to achieve economies of scale and scope (Fulconis & Paché, 2019). Another role is a *provider of last resort*; when a needed service can't be provided by any organization, the LSP, in this case, is to be employed (Jahre & Jensen, 2010); and *infomediary* role of an LSP which fits very much with collating and sharing information with participating organizations (Jensen, 2012). Table 2 demonstrates different developing roles LSPs serve in the HSC, as well as examples depicted from the related literature review.

Table 2. Emerging roles of LSP in HOs

<i>Emerging role</i>	<i>Explanation</i>	<i>Example</i>
Member	A genuine part of the HSC network without further explanation on duties	Just a part of the chain provide services when needed
Integrator	LSP is a member of the HSC and has to be integrated into the chain	Designing, building, and managing shippers' supply chains to achieve competitive advantage
Tool	LSP as a member of the HSC who fulfills specific tasks	Third-party logistic (3PL) contractor provide transportation resources
Logistic intermediary	LSP fulfills activities to organize a wide pool of logistical resources	Offering procurement services on behalf of the users
Provider of last resort	LSP as the last party to provide a service when there are no other options	The system of storehouses and the setup of trucks during a crisis for a specific party (see Gaza crises)
Infomediary	LSP as to collate and share information	Sending GPS information observed during relief operations on the road infrastructure

2.3. What to outsourcing?

LSPs will contribute to the humanitarian disaster response and add value. Notwithstanding, very little attention has been acclaimed on what organizations should outsource (Bealt et al., 2016; Baharmand et al., 2017; Cozzolino et al., 2017; Vega & Roussat, 2015).

Outsourcing was observed for many kinds of items used in relief operations, several types of flows range between food aid items and non-food items (Sanchez Gil & McNeil, 2015) among the non-food items; providing accommodation and housing needs (e.g., shelters, blankets) (Gossler et al., 2020), protection services tools (e.g., gloves and masks), housing and sanitation building material, household equipment, energy products (e.g., coal), and even the flow of water and other fluids like fuel. In some cases, LSP can handle the so-called physical flows including medical equipment to treat wounded people, medications, such as vaccines and drugs, and basic nutrition products such as therapeutic foods.

According to Vega and Roussat (2015), the process of outsourcing was viewed through the three phases of a disaster, thus, activities to be outsourced will differ accordingly. For example, in the *preparation phase*: it has been found that the most outsourced activities are procurement, inventory management and storage of prepositioned deliveries, transport coordination, and goods transport. In the *response phase*, the analysis showed that activities, such as fleet management, customs clearance, material handling, and last-mile distribution are the most outsourced. In the final phase, *the recovery*, Vega and Roussat (2015) realized that the logistical activities of this phase included storage, transport, and procurement.

Consequently, the most common outsourced activities of the HOs are, therefore, transportation and storage; transportation operations may include

air transport, maritime transportation, and earth transport and navigation (Vega & Roussat, 2019) not to mention the importance of storage; a logistical activity that uses warehouses, podiums, and water tanks. Its importance arises for some products that require exceptional storage conditions, for example, vaccines need controlled temperatures, requesting the use of cold chains (Comes, Bergtora Sandvik, & Van de Walle, 2018).

Considering the importance of outsourcing in the HSC and the ability of LSPs to improve the overall performance, this study aims at exploring and verifying the potential benefits of outsourcing some logistical activities to commercial LSPs in the Al Zaatari Syrian refugee camp in Jordan.

On the basis of this, it is hypothesized that:

H1: There is a positive and significant effect of implementing an outsourcing strategy on improving logistic operations of HO's acting in the Al Zaatari refugee camp.

H2: There is a positive and significant effect of outsourcing accommodation and housing operations on the effectiveness and efficiency of accommodation and housing operation and acting plan of HO's acting in the Al Zaatari refugee camp.

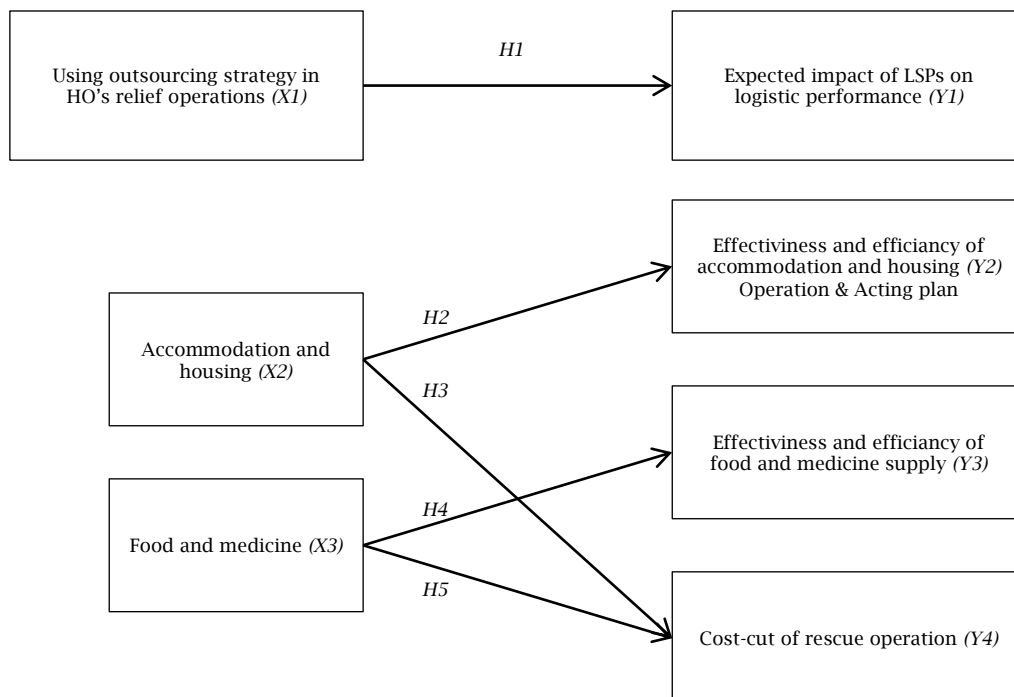
H3: There is a positive and significant effect of outsourcing accommodation and housing operations on the cost-cut of rescue operations of HO's acting in the Al Zaatari refugee camp.

H4: There is a positive and significant effect of outsourcing food and medicine supplies on the effectiveness and efficiency of the food and medicine supply of HO's acting in the Al Zaatari refugee camp.

H5: There is a positive and significant effect of outsourcing food and medicine supplies on cost-cut of rescue operations of HO's acting in the Al Zaatari refugee camp.

Figure 1 represents a graphical summary of the conceptual model and proposed hypotheses.

Figure 1. Graphical summary of the conceptual model and proposed hypotheses



3. RESEARCH METHODOLOGY

According to the literature related to outsourcing of humanitarian logistic activities, the extant studies suffer from a shortage of a holistic theory, framework, as well as practice. This led to confirm the urgent need for more empirical evidence (Kovács & Spens, 2011; Nurmala et al., 2018; Sigala & Wakolbinger, 2019; Van Wassenhove, 2006).

Since it is an emerging topic, the authors combine conceptual and analytical approaches, which seek to explain a new phenomenon and to suggest a new theory. To determine the current situation relating to the subject under investigation, a thorough review of the existing studies was first performed. A series of items were therefore created to explore the advantages of outsourcing certain humanitarian logistics supply chain operations in the Al Zaatari Syrian refugee camp in Jordan as the key site for CLSPs.

3.1. Data collection and analysis

To collect the necessary data, a questionnaire-based survey was used as one of the most relevant means for such cases. Three parts of the 28 statements questionnaire were designed, academically referred and tested before it was distributed to the participants.

The first part of the questionnaire was devoted to measuring the characteristics of the sample, whilst the second and the third parts of the questionnaire were devoted to measuring the study variables. Two independent variables and three dependent variables were proposed relying upon the related literature and previous studies. Independent variables measure some logistical activities of HOs acting in Al Zaatari refugee camp that can be outsourced to the CLSP. The first variable examines outsourcing of housing and housing operations to LSPs, followed by the second variable concerning outsourcing of food and medicine supplies to LSPs. On the other hand, dependent variables were devoted to measuring the benefit resulting from implementing outsourcing strategy in logistic operations held by Hos in the camp. The first and second dependent variables were devoted to measuring how effective and efficient the accommodation and housing operation and acting plans in addition to food and medicine supply would be as a result of outsourcing these primary logistical activities, and the third dependent variable measures the possibility of cost-cut of rescue missions by reason of outsourcing. All scales were measured on a five-point Likert scale.

As the target audience of the study should be engaging in humanitarian logistic activities, a sample of 140 logistic workers was randomly withdrawn based on Al Zaatari camp HR management records,

the workers were basically involved in logistics, inventory and materials, transportation and shipping activities. A systematic process of data collection was performed in the third part of 2020. At the beginning, we briefly introduced our organization and research objectives and what we aim out of it, then participants were asked to provide information about their logistical experience, and specific roles in Al Zaatary supply chain to bring insights that we may not have. After, 140 questionnaires were distributed to the aforementioned logistics workers. A total of 126 responses were received, out of which 7 were excluded due to missing data and 119 questionnaires were correctly completed. Therefore, the usable questionnaires which were used for implementing the intended statistical analysis result in a response rate of 85%. Table 3 portrays the characteristics of the study sample.

3.2. Validity and reliability

The current research used questionnaires as the main instrument; included items were developed after a thorough examination of relevant empirical and theoretical studies related to the main research subject, i.e., outsourcing and using logistic service providers to enhance the performance of Al Zaatari supply chain. The first measuring items were drawn in English, however, to ensure the understandability of survey items and to reinforce the response rate. The items were translated into the respondent's perspective language, namely Arabic language.

In the end, the authors subjected the questionnaire to an academic examination. Three bilingual (English and Arabic) university professors from the Business Administration Department at the Al-Zaytoonah University of Jordan took part. Additionally, the views of administrators in the Al Zaatari refugee camp were also sought to determine if the questionnaire items were clear and understandable. A final copy of the questionnaire for the main data collection was prepared based on the two steps described above. Thus, face and content validity were established.

To ensure the reliability of the questionnaire parts and statements as a relevant measurement for the adopted variables, Cronbach's alpha and sampling adequacy (Kaiser-Meyer-Olkin (KMO) measure) tests were implemented. Table 4 shows that Cronbach's alpha value is 0.981 which is a good indicator that the questionnaire parts and statements are reliable to measure the seven adopted variables of this study and it is a measure of internal consistency, that is, how closely related a set of items are as a group. The results showed that the KMO statistic is 0.943, which is greater than 0.50 for all scales and that reinforces sampling adequacy.

Table 3. Characteristics of the study sample

Category	Frequencies	%
Gender		
Male	100	84,03
Female	19	15,97
Total	119	100
Age		
Up to 25	34	28,57
26-45	77	64,7
45-64	8	6,7
Total	119	100
Marital status		
Married	73	61,34
Single	46	38,65
Total	119	100
Education		
Diploma	18	15,12
Bachelor	89	74,78
Master	12	10,08
Total	119	100
Specialization		
Logistic	52	43,69
Delivery	45	37,81
Transportation	14	11,76
Transport/Shipping	8	6,7
Total	119	100
Job title		
Customer service (shipping and logistics)	36	30,25
Logistic coordinator	22	18,48
Inventory supervisor	14	11,76
Technician (Water pipes extension)	11	9,24
Material manager	11	9,24
Technicians (Power extender)	10	8,04
Logistic engineer	8	6,72
Logistic manager	6	5,04
Total	119	100

4. MAIN RESULTS AND HYPOTHESIS TESTING

Descriptive analysis statistics were performed to describe the study data, which contain the mean, standard deviation, and inter-items correlations for each variable, these are presented in Table 5. The table also shows the correlation coefficients which highlight the relationships among all variables ($N = 119$). These coefficients illustrate that all logistic services to be outsourced are significantly correlated with each other, as well as with all potential benefits sought from using outsourcing strategy by HOs.

Since all variables are significantly and relatively correlated, as presented in Table 5, the potential multicollinearity problem is raised. In regression analysis, if correlation coefficients between two independent variables or more are high, β -values for those independent variables will be interchangeable, and consequently, the standard error among β coefficients will be higher. In such cases, variance inflation factor (VIF) and tolerance values should be examined. According to Hair, Anderson, Tatham, and Black (1998), multicollinearity will not be a problem if the VIF values are less than 10 and tolerance is larger than 0.10. As it is seen in Table 6, all independent variables were within the assumptive values.

Table 4. Reliability statistics

Cronbach's alpha	Cronbach's alpha based on standardized item	No. of items	KMO value
0,981	0,981	7	0,943
KMO of sampling adequacy			0,943

Table 5. Descriptive statistics (Mean, SD, and correlations)

Variable	Mean	SD	X1	X2	X3	Y1	Y2	Y3	Y4
X1 Using outsourcing strategy in HO's relief operations	4.3193	0.67564	1.000						
X2 Accommodation and housing operations	4.3298	0.68189	0.911***	1.000					
X3 Food and medicine supplies	4.3214	0.68747	0.857***	0.865***	1.000				
Y1 Expected impact of LSPs on logistic performance	4.3718	0.68956	0.899***	0.890***	0.885***	1.000			
Y2 Effectiveness and efficiency of accommodation and housing operations	4.4202	0.65656	0.890***	0.887***	0.879***	0.913***	1.000		
Y3 Effectiveness and efficiency of food and medicine supplies	4.2689	0.67895	0.845***	0.849***	0.866***	0.885***	0.864***	1.000	
Y4 Cost-cut of rescue operation	4.3256	0.66667	0.847***	0.874***	0.861***	0.896***	0.860***	0.915***	1.000

Note: *** $p < 0.001$.

Table 6. Collinearity statistics

<i>Variable</i>	<i>Tolerance</i>	<i>VIF</i>
Using outsourcing strategy in HO's relief operations	0.151	6.627
Accommodation and housing operations	0.144	6.965
Food and medicine supplies	0.224	4.459

To examine the relationships and diagnose the impacts of independent variables on the dependent

variables regression statistical test was conducted Table 6 portrays the testing results.

Table 7. Regression analysis results

<i>Hypothesis</i>	<i>Relationship</i>	β	<i>t-values</i>	R^2	<i>f-values</i>	<i>Decision</i>	<i>Durbin-Watson</i>
H1	X1 → Y1	0.899	2.261*	0.809	493.986	Accepted	1.727
H2	X2 → Y2	0.887	4.006***	0.788	433.809	Accepted	1.877
H3	X2 → Y4	0.874	3.247**	0.765	380.121	Accepted	2.131
H4	X3 → Y3	0.866	2.864**	0.751	351.949	Accepted	2.015
H5	X3 → Y4	0.861	3.599***	0.741	334.258	Accepted	2.250

Note: * $p < 0.05$; ** $p < 0.005$; *** $p < 0.001$.

As illustrated in Table 5 and Table 7, the correlation coefficient values between the independent and dependent variables were varied between 0.845 and 0.913 at a 0.000 level of significance. These results indicate that each individual variable out of the independent variables (namely, *Using outsourcing strategy in HO's relief operations*, *outsourcing Accommodation and housing operations*, and *Food and medicine supplies*) are highly and positively correlated with each individual variable out of the dependent variables (Potential improvement of outsourcing some activities in HOs). The β -value of the regression testing that the independent variables are individually impacted each individual dependent variable, as the β -values were varied between 0.861 and 0.899, and the R^2 -values ranged from 0.741 to 0.809) with calculated F -values ranged between 40.561 and 493.986 against tabulated F -value of 4.791. These results are clearly and significantly approve the hypotheses of this study and confirm that there are positive and significant impacts and correlations between the independent variables and the dependent variables.

5. DISCUSSION

In this paper, a model was developed and it was empirically tested to highlight the potential improvements generated by the outsourcing of accommodation and housing services, as well as food and medicine supplies to external LSP. The expected relationships were developed and their hypotheses were formulated.

The above-presented results have brought to light the impact of outsourcing these logistical activities to a logistic services provider. These results confirmed that a rationalized and considerably improved decision-making process, can be achieved, and the general performance of Al Zaatari refugee camp management also can be enhanced. The positive and statistically significant correlations and impacts of outsourcing logistics services to provide required supplies of accommodation and housing materials, accompanied with quick delivery for food and medicine supplies have clearly indicated that rescue operations in general, such as accommodation preparation, food and medicine supplies delivering and cost-saving operations, in particular, will be more efficient, effective and will considerably be

improved. In short, the independent variables have considerable effects on each of the three dependent variables. Relying upon the R^2 -values it would be sensible to suggest that the expansion in outsourcing of the above-mentioned services will directly improve the rescue operations with a considerable saving in the general cost of rescue operations.

The lack of interest in the outsourcing and activities of providing services, within the humanitarian logistical sector, as it is presented by the existing literature, has encouraged many researchers to emphasize the importance of conducting other extensive empirical studies to clarify all the aspects of this topic.

The findings of this study also confirmed the potential benefits yield from outsourcing. A reasonable question could be asked in this respect: Why to outsource? The answer is that increasing LSP involvement in relief supply chains as commercial actors will accelerate rescue operations and increase their efficiency and effectiveness (Bealt et al., 2016; Gossler et al., 2020; Hoxtell et al., 2015; Kovács & Spens, 2011; Sigala & Wakolbinger, 2019; Thomas & Fritz, 2006; Vega & Roussat, 2015; Van Wassenhove, 2006).

HSC in Al Zaatari can learn from best practices of commercial supply chains through collaborating and working together on delivering services (Nurmala et al., 2018). The two parties, inevitably, are in need to interact and cooperate closely, which will be beneficial for both. This seems to be a logical conclusion as the commercial logistics companies have all the necessary capacities, skills, experiences, and competencies to help in the rescue operations (Heaslip, 2013; Nurmala et al., 2018; Van Wassenhove, 2006).

Moreover, developing skills and knowledge in HL is a problematic issue and needs to be overcome. This obstacle could be mitigated when the collaboration takes place in a post-disaster program — implicitly the response phase of the disaster management cycle (Carter, 1999). The results of our study showed that outsourcing is a preferred choice, and thus, it has a positive impact when LSPs intend to build and coordinate a cost-efficient and time-effective post-disaster response in Al Zaatari camp. In addition to that, transportation services were realized to be among the most desired outsourced activities after the disaster occurs, this conclusion is inconsistent with the findings of Baharmand et al. (2017), Bealt et al. (2016), Nurmala

et al. (2017), Vega and Roussat (2015). When it comes to the analysis of “what to outsource”, the findings revealed that the Al Zaatari camp supply chain prefers to outsource what is known as “primary humanitarian logistics activities” (Nurmala et al., 2017, p. 89) to boost and faster response to refugees and alleviate their suffering, these primary logistic activities include food items and water (Sanchez Gil & McNeil, 2015) and non-food items; basically accommodation and housing material, and flows of pharmaceuticals and medical equipment (Gossler et al., 2020).

6. CONCLUSION

The unstable state of our natural environment is behind all the natural disasters of storms, hurricanes, earthquakes, floods, famines, and drought. In addition to man-made disasters caused by wars, terrorist acts, and sometimes civil armed conflicts. These incidences often make hundreds of thousands of people refugees and in urgent need for transportation, accommodation, shelter, food and medicine supplies. These needs and requirements, most likely, are out of the humanitarian organization's capacities. Therefore, this study aimed at investigating the potential benefits of outsourcing some logistical services, namely accommodation and housing services, as well as food and medicine supplies to specialized CLSPs to improve rescue missions in the Al Zaatari refugee camp.

The results have shown that the role of commercial logistical companies in facilitating all types of humanitarian rescue operations is vital and critical. Accordingly, it would be beneficial for humanitarian organizations operating in the camp to seek help and support from these specialized service providers, mainly, to accelerate the rescue operations as they have the required capabilities and resources for this aim, and to maintain the providing and delivering of the urgent needs such as shelters, food, water, and medical supplies on a timely basis to save lives. It was also confirmed that using outsourcing strategy would improve the utilization of financial resources in terms of costs cut of logistical activities in HSC expenses and rescue operations. These outcomes have been statistically affirmed, and have been assured that the assistance support of commercial logistics companies in disaster situations considerably improving and quickening humanitarian rescue operations.

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A key contribution emanating from this study is that it is a response to the call for more evidence-based studies on how the humanitarian sector can benefit from partnering with the commercial sector in managing HSCs and this is in divergence with earlier studies that have not focused mainly on why to outsource and what to outsource.

Another important contribution that emerges from the current research is that it represents the first study in the humanitarian logistic services sector in the Arab region, and with the conflict in Syria entering a protracted situation, Jordan must continue to provide a safe haven for Syrian refugees and provide them with what they need of shelters, food, medicines, and other primary services to alleviate their suffering.

Furthermore, the Syrian refugee crisis has exacerbated political, economic, and resource-related challenges in the host countries in the Arab region, the current findings are limited to Jordan. However, other Arab countries like Lebanon, Iraq, and Egypt are still receiving displaced people and the current study is a good opportunity to do further empirical research regarding the topic in these host countries.

To raise the performance of humanitarian organizations in rescue operations, particularly in Al Zaatari refugee camp, this study offers a number of insightful recommendations. Humanitarian organizations should outsource primary humanitarian logistics services to save time and money, and to effectively and efficiently manage the rescue activities and operations. These organizations are also advised to develop and implement joint training programs with local logistics companies to transfer their knowledge, experience, and skills, so as to improve and accelerate rescue operations. In addition to that seeking a long-term agreement with local logistics companies to take advantage of their capacities, facilities and competencies, would rationalize humanitarian operations and saving money.

It would be beneficial for humanitarian organizations, in general, and United Nations humanitarian organizations, in particular, to build up a globally contemporary, sustainable database for all logistics companies by country to ensure fast and easy communication with these companies in disaster situations. The Arab region would take advantage of this initiative as a catastrophic area.

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APPENDIX. QUESTIONNAIRE

Section one: Demographic data

Please put a Tick (✓) in the box that represents your answer to each of the following questions:

1. Gender:

Male Female

2. Age:

Up to 25 26 to less than 45 45 to less than 64

3. Educational level:

Two-year diploma Bachelors Master Doctorate

4. Marital Status:

Married Single Other

5. Job specialization (Job field or job department)

6. Job title

Section two: Independent variables

Please put a Tick (✓) in the box that represents your answer to each of the following questions:

1. The role of logistical service providers in managing disaster relief operations.					
<i>Statements</i>	<i>Strongly disagree</i>	<i>Disagree</i>	<i>Neither agree nor disagree</i>	<i>Agree</i>	<i>Strongly agree</i>
The expertise of commercial logistical companies can be used for humanitarian relief operations in general.					
There are similarities between the activities of commercial logistical companies and the activities of humanitarian organizations in terms of practices and tasks.					
Commercial logistical companies play an important and major role in implementing relief operations.					
In Jordan, there are specialized logistical companies that help humanitarian organizations to implement relief operations.					
2. The role of logistical companies in facilitating accommodation and housing operations.					
<i>Statements</i>	<i>Strongly disagree</i>	<i>Disagree</i>	<i>Neither agree nor disagree</i>	<i>Agree</i>	<i>Strongly agree</i>
Logistical companies have a positive role in facilitating accommodation and housing operation in Al Zaatari camps.					
Logistical companies have a positive role in facilitating and expediting the evacuation of people in disaster areas.					
Logistics activities considered to be the core humanitarian relief activities.					
Accommodation and housing operations consider to be among the priorities of relief operations.					
3. The role of logistical companies in providing food and medical supplies.					
<i>Statements</i>	<i>Strongly disagree</i>	<i>Disagree</i>	<i>Neither agree nor disagree</i>	<i>Agree</i>	<i>Strongly agree</i>
Logistic companies have an essential role in providing food and medical supplies.					
Logistic companies have a vital role in preserving the lives of those affected by disasters or wars.					
The logistical work to provide food and medical supplies is no less important than rescue and other relief operations.					
The provision of food and medical supplies is one of the most important practices that ensure the success of relief efforts to protect the lives of people affected by disasters.					

Section three: Dependent variables

Please put a Tick (✓) in the box that represents your answer to each of the following questions:

4. The expected impact of commercial logistical companies' services on increasing the effectiveness of Al Zaatari camp relief operations.					
<i>Statements</i>	<i>Strongly disagree</i>	<i>Disagree</i>	<i>Neither agree nor disagree</i>	<i>Agree</i>	<i>Strongly agree</i>
Local and international aid organizations benefit from the expertise of commercial logistical companies in managing relief operations in general.					
The expertise of commercial logistics companies can be transferred to humanitarian logistics organizations to facilitate and improve their performance.					
Commercial logistical companies have the ability to improve the outputs of humanitarian relief operations in general.					
There are specialized logistical companies in Jordan that can contribute to managing and implementing effective and successful relief operations.					
5. The expected impact of commercial logistical companies' services on increasing the effectiveness of Al Zaatari camp's accommodations and housing operations.					
<i>Statements</i>	<i>Strongly disagree</i>	<i>Disagree</i>	<i>Neither agree nor disagree</i>	<i>Agree</i>	<i>Strongly agree</i>
Commercial logistics companies have a positive role in supporting and activating accommodation and housing operations in camps and disaster areas.					
Commercial logistics companies have an essential role in providing the necessary capacities to accelerate and succeed in the evacuation operations of disaster areas.					
Logistical work is the basic pillar of all humanitarian relief operations.					
Accommodation and housing operations are among the most important humanitarian relief operations that are greatly affected by logistical activities.					
6. The expected impact of commercial logistical companies' services on increasing the effectiveness of Al Zaatari camp's food and medical supplies.					
<i>Statements</i>	<i>Strongly disagree</i>	<i>Disagree</i>	<i>Neither agree nor disagree</i>	<i>Agree</i>	<i>Strongly agree</i>
Commercial logistics companies possess various capabilities to provide timely-accurate food and medical supplies.					
Commercial logistics companies possess human and financial capabilities to provide timely-accurate food and medical supplies.					
Providing food and medical supplies on a timely basis considers one of the most important humanitarian logistical operations.					
The operations of providing food and medical supplies to the camp with appropriate speed helps in saving lives and ensuring the safety of those affected in disaster areas.					
7. The expected impact of commercial logistical companies' services on rationalizing the costs of humanitarian relief operations.					
<i>Statements</i>	<i>Strongly disagree</i>	<i>Disagree</i>	<i>Neither agree nor disagree</i>	<i>Agree</i>	<i>Strongly agree</i>
Commercial logistics companies have high capabilities to facilitate the implementation of housing and accommodation operations at reasonable costs.					
Commercial logistics companies have effective materialistic and human capabilities to facilitate the evacuation of displaced people to safe areas at reasonable costs.					
Logistical work considers one of the most cost-consuming activities in relief operations.					
The costs of accommodation and housing operations comprise the highest percentage of the total costs of relief operations.					