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Inter-Organizational Fit, Relationship Management Capability, and Collaborative Performance within a Humanitarian Setting

Mohammad Moshtari

E-mail: mohammad.moshtari@hanken.fi

Hanken School of Economics
Supply Chain Management and Social Responsibility
Humanitarian Logistics and Supply Chain Research Institute
Arkadiankatu 22; 00101 Helsinki; Finland
Tel. + 358 46 6267788

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Abstract:

Donors and governments are increasingly calling for more collaborative relationships between humanitarian organizations, to improve the efficiency and effectiveness of humanitarian operations by exchanging information, knowledge, and resources. This study examines the relative efficacy of partners' characteristics (i.e., compatibility and resource complementarity) and partners' relationship management capability on collaborative relationships, incorporating mutual trust and reciprocal commitment as two mediator constructs. We use Partial Least Squares to examine the proposed hypotheses using a sample of 191 respondents. Data are collected through a web-survey of international humanitarian non-governmental organizations (NGOs) in countries across Africa, Asia, and South America. The results reveal that (i) resource complementarity and relationship management capability are significant factors influencing collaborative performance through their effects on partners' mutual trust and reciprocal commitment, and that (ii) partners' compatibility (i.e., missions, values, and operational methods) does not significantly drive success or failure of collaboration between international NGOs. These results suggest that given the present diversity of humanitarian organizations' characteristics, the success of collaboration is associated with the partners' level of understanding of each other's objectives, operations, and values, and to the extent to which organizations efficiently communicate and coordinate their joint activities. The managerial implications of the findings are also discussed.

Key Words: Inter-organizational Relationship, Collaboration, Commitment, Trust, Inter-organizational Fit, Relationship Management Capability, Humanitarian Operations, Survey, and Partial Least Squares.

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1. Introduction

After a disaster hits a region, a considerable number of NGOs become involved in humanitarian operations. For example, after the Asian Tsunami in 2004, more than 700 international NGOs from 40 countries were present in the affected area (Chia, 2007), and more than 3,000 NGOs responded to the 2010 Haiti earthquake (Kristoff et al., 2010). Given the high number of humanitarian actors, the lack of collaboration among humanitarian organizations (HOs) results in ineffective aid distribution, particularly in the last mile (Murray, 2005); causes congestion at local airports and roads (Fritz, 2005); can lead to injury or death of those struggling to attain services (Moore et al., 2003); and can lead to competition among HOs over limited resources (e.g., building materials and labor), raising costs and delaying services (Chang et al., 2011). To address these challenges, donors and governments are increasingly calling for more collaborative relationships between humanitarian organizations, to improve the efficiency and effectiveness of humanitarian operations by exchanging information, knowledge, and resources. Inter-organizational collaboration within a humanitarian setting can yield benefits such as access to more resources (e.g., donations, equipment, skills, and information), improved image with donors and the public, less competition over limited resources, avoidance of unnecessary duplication of organizations' efforts, and the ability to buffer external uncertainties.

Collaboration may occur over one or more tasks within a humanitarian supply chain, for example, information sharing, context and capacity analysis, needs assessment, resource mobilization, joint procurement, transportation, warehousing, or last-mile delivery. Nevertheless, HOs usually face challenges when collaborating with their partners. Part of these challenges comes from the diversity of partners' characteristics. Each HO has its own mission, values, routines, and approach to conducting its operations. In addition, each HO has its specific resources, international and local network, or working experience. These differences between HOs, combined with the difficulties inherent in operating a humanitarian supply chain, makes collaboration more arduous. First, HOs mostly activate their operations after the occurrence of a sudden-onset disaster, and due to their limited resources, HOs exit

the affected region or scale down their capacities within a short period. Therefore, collaboration in this setting is not a long-term oriented partnership such as alliances, but can be considered episodic collaboration (Zacharia et al., 2011) over a transient supply chain (Day et al., 2012). Episodic collaboration occurs for a limited duration and for a specific purpose after a disaster hits a region. Second, there is considerable uncertainty regarding the beneficiaries' needs, the operational environment (e.g., damaged regional supply network, malfunctions in communication systems, low level of security, and the high number of stakeholders) and the available supply (e.g., donors' contribution, active humanitarian actors, and local resources) (Van Wassenhove, 2006). The third problem involves donations. There are often a large amount of in-kind donations that are not needed and that complicate operations further, such as causing congestion at airports (Holguín-Veras et al., 2012). On the other hand, financial donations are media driven, limited, and mostly earmarked. Fourth, after a disaster strikes, a group of small or newly formed organizations emerges that compete with other established organizations for resources, which often creates more challenges or complications for collaboration efforts (Day et al, 2012). Fifth, even in established HOs, there are high rates of human resource turnover (staff and volunteers) engaged in the projects. Last but not least, competition among HOs over scarce resources, donations, or media attention limits the level of collaboration or has a negative impact on the collaborative relationships (Van Brabant, 1999; Kovács and Spens, 2010).

In this context, looking for a proper partner or organizing successful collaboration is a challenging task. Herlin and Pazirandeh (2012) propose that when there is diversity between partners' characteristics (e.g., goals, motivations), the success of collaborative relationship depends on the partners' level of understanding about each other's objectives, operations, and values. Therefore, this study aims to answer whether having a partner with a higher level of compatibility, and/or whether having a partner with the experience and capabilities to manage the collaboration process, is vital to having successful inter-organizational collaboration. This study considers the effect of partners' characteristics (i.e., compatibility and resource complementarity), and partners' relationship management capability on collaborative

relationships within a humanitarian setting. One stream of research suggests that the level of similarity between partners' characteristics, such as their mission, vision, the routines or technologies, is positively associated with collaborative relationship performance (e.g., Lincol and McBride, 1985; Sarkar et al., 2001; Stahl and Voigt, 2008). Furthermore, when partners share complementary resources, the collaboration effort is associated with positive payoffs (Rowley et al., 2005; Sarkar et al., 2001). Another stream of research highlights the value of relationship management capabilities (e.g., Ring and Van de Ven, 1994; Park and Ungson, 2001). When partners efficiently and effectively communicate, share information, or coordinate within a partnership, the satisfaction of partnership performance is higher (Schreiner et al., 2009). Each of these perspectives has received empirical support when tested separately, but the only way to evaluate their relative impact on performance is to compare the effects of each perspective's focal constructs across a common context (Hunt, 2002; Palmatier et al., 2007).

This study contributes to humanitarian logistics and management. It is a response to calls in recent years to conduct systematic studies of collaboration in humanitarian operations (Balcik et al., 2010; Schulz and Blecken, 2010). Up to this point, scholars have explored the inhibitors and drivers of collaboration in a number of papers and reports, but these studies are built upon evidence collected through a finite number of organizations and have served primarily to provide a list of factors that influence collaboration. However, the importance of these factors and the relationships between them are not clear (Moshtari and Gonçalves, 2013). Therefore, more theory-driven studies are required to collect evidence through large-scale surveys and to provide overviews of significant factors that influence collaboration at the inter-organizational level. Along these lines, we follow recent endeavors by scholars to combine several perspectives/theories in studying inter-organizational relationships (Lavie et al., 2012; Palmatier et al., 2007). Accordingly, we adopt a multi-theoretical approach integrating inter-organizational fit and relationship management capability perspectives within a research model to empirically examine the relative efficacy of two examined perspectives. In addition, conducting a large-scale survey with international humanitarian NGOs allows us to give insight into the significant factors influencing

collaboration among HOs. The findings suggest that in a humanitarian setting sharing valuable resources and maintaining relationship management capabilities (i.e., coordination, communication, and bonding skills) is more vital than inter-organizational compatibility (e.g., similar missions, objectives, and operational procedures).

This paper is organized as follows. Building on the literature review and the insights from inter-organizational relationship theories, in section 2, we develop a research model of collaboration that proposes the antecedent and mediating factors influencing collaborative performance among HOs. Section 3 explains the study design (i.e., the constructs' measurements and the data collection procedure). In sections 4 and 5, we present the results of data analysis, as well as the associated discussion and managerial implications. Finally, in section 6, we summarize the study findings and conclude with a number of opportunities for future research.

2. Theoretical Background and Hypotheses

2.1. Inter-organizational collaboration

Inter-organizational collaboration refers to a partnership process where two or more independent organizations share resources (e.g., information, expertise, and infrastructure) or work closely to design and implement their operations. Collaborative relationships are a type of inter-organizational relationship that runs the continuum from remote to tightly-coupled. Collaboration at the lowest level is referred to as an arm's length relationship that maintains a limited number of exchanges; at the highest level, it is referred to as integration, combining assets and operations under sole ownership.

Gulati et al. (2012) describe inter-organizational collaboration as a concept that includes two facets; cooperation and coordination. Cooperation deals with setting collaboration goals (e.g., enhanced legitimacy and lower operations costs) and negotiating and deciding on the amount of resources (e.g., competent human resources, knowledge or experiences) allocated to reach these goals. In other words,

inter-organizational cooperation is seen as a “joint pursuit of agreed-on goals in a manner corresponding to a shared understanding about contributions and payoffs” (Gulati et al., 2012, p. 3). Conversely, inter-organizational coordination refers to efforts in aligning organizations’ tasks or actions to achieve cooperatively specified goals (Gulati et al., 2012). Ergun et al. (2011) define coordination as managing parallel actions which may include conducting identical or different activities or projects by different organizations. Putting the two approaches together, while the cooperation perspective deals with agreement on inputs and outputs of collaboration efforts, the coordination perspective focuses on the means or mechanisms to operationalize the collaborative relationship. As the amount of desired inter-organizational collaboration activities increases (i.e., from low level to a high level) more effort should be made to ensure the alignment of partners’ goals. Similarly, organizations have to invest more resources and effort to increasing the consistency among each other’s actions to be able to conduct tasks together.

2.2. The relational view

The relational view suggests that firms can obtain competitive advantages by relational rents or benefits that are generated within collaborative relationships and through the joint effort and contribution of partners (Dyer and Singh, 1998), which are not possible through the effort of an individual firm (Cao and Zhang, 2011). Dyer and Singh (1998, p. 662) suggest that inter-firm relationships generate a superior outcome when “partners combine, exchange, or invest in idiosyncratic assets, knowledge, and resources/capabilities, and/or they employ effective governance mechanisms.”

Rindfleisch and Heide (1997) discuss two types of governance that allow partners to create relational rents: unilateral governance (e.g., a third-party authority enforcing the agreements) and bilateral governance. Bilateral governance includes formal and informal safeguards. Formal safeguards refer to financial incentives/penalties designed to enforce the agreement, and informal safeguards refer to the relational orientation (i.e., mutual trust, reciprocal commitment) between partners (Chen et al., 2013). Relational governance exists when organizations trust each other and have a commitment to save or continue the

relationship. The informal or relational safeguards are more effective within complex working environments in which partners cannot foresee the future and they therefore develop comprehensive agreements to discourage opportunistic behaviors. Shah and Swaminathan (2008) suggest that when the process manageability of collaboration is difficult, or when the outcome interpretability of the collaboration's result is low, trust and commitment are vital in partner selection. Within a humanitarian setting, the low level of management time devoted to collaboration, volunteer or junior human resources involved in collaboration tasks, poor communication and coordination among partners, ambiguity and information overload within humanitarian operations, or stress related to relief work are among the reasons that the process manageability within collaborative activities suffers (Balcik et al., 2010; Stephenson and Schnitzer, 2006; Scotter et al., 2012). In addition, the collaboration outcomes in a humanitarian setting are subjective and difficult to measure; the evaluation varies among stakeholders or partners which decreases outcome interpretability (Hicks and Pappas, 2006; Schulz and Blecken, 2010; Zoraster, 2010).

Relying on prior research (Morgan and Hunt, 1994; Nyaga et al., 2010), we advance a baseline proposition that relational orientation (i.e., mutual trust and reciprocal commitment) leads to improved collaborative performance. One aspect of relational orientation is the amount of trust between partners. Morgan and Hunt (1994, p. 23) define trust, which influences collaboration, as “confidence in an exchange partner’s reliability and integrity.” Benevolence and competence are two dimensions of trust (Ganesan, 1994; Moorman et al., 1992). Benevolence-based trust reflects the perception of the “partner’s goodwill and avoidance of opportunism” and competence-based trust elaborates on the reliance on the partner’s “expertise, capabilities, and judgments” (Shah and Swaminathan, 2008, p. 474). Zaheer et al. (1998) see trust as a significant factor in improving inter-organizational relationship performance, reducing conflicts, and decreasing the costs of collaboration. A high level of trust among organizations leads to the use of social control mechanisms (Inkpen and Currall, 2004; Li et al., 2010). This increases the flexibility and efficiency of inter-organizational partnerships and allows issues to be openly identified,

considered, and resolved (Wuyts and Geyskens, 2005).

In a humanitarian setting, an HO's trust in its partner can be observed through openness between partners and/or greater appreciation of partners' contributions to the collaborative relationship (Corsten and Kumar, 2005). Given a high level of competition among organizations for scarce resources in a humanitarian setting, we argue that mutual trust discourages partners to practice opportunistic behaviors, and encourages partners to exchange information, knowledge, and other resources with each other. In addition, mutual trust allows partners to clarify problems and to resolve conflicts fairly. Thus, we propose:

Hypothesis H₁: The level of mutual trust between two humanitarian organizations is positively associated with their collaborative performance.

Another aspect of relational orientation is the amount of commitment between partners. Commitment is “an enduring desire to maintain a valued relationship” (Moorman et al., 1992, p. 316). When organizations have a commitment to a relationship, they provide adequate resources to maintain the relationship and to make it successful (Sarkar et al., 2001). Commitment is a critical element of relationship capital (Madhok, 1995) and its positive effect on collaborative performance has been widely reported (Gundlach et al., 1995). After initiating collaboration, partners have to dedicate continuous resources to attain the relationship objectives. Accordingly, we conceptualize reciprocal commitment as the degree to which both partners are willing to invest requisite resources into the collaboration (Gulati et al., 1994). In a humanitarian context, these resources can be access to donors, access to media, competent human resources, local networks, or infrastructure (e.g., inventory, distribution facilities). Morgan and Hunt (1994) refer to a lack of commitment as one reason that partnerships fail. We argue that in an episodic collaboration in which time pressure is high and resources are limited, reciprocal commitment between HOs, where partners dedicate their valuable assets to a collaborative initiative, is vital for successful collaboration. Therefore, we propose that in a humanitarian setting, reciprocal commitment among HOs is a critical factor in predicting relationship performance:

Hypothesis H₂: The level of reciprocal commitment between two humanitarian organizations is positively associated with their collaborative performance.

Within the research model, we consider mutual trust and reciprocal commitment as endogenous factors that are influenced by a number of antecedent factors (Lavie et al., 2012; Nyaga et al., 2010). We also consider two frameworks—inter-organizational fit and relationship management capability—to investigate the antecedent factors influencing collaboration through their effects on mutual trust and reciprocal commitment.

2.3. Inter-organizational fit

Inter-organizational fit relates to compatibility among organizations and to their resource complementarity. Organizations' compatibility refers to the degree of congruency among organizations' goals, missions or value systems (Holcomb and Hitt, 2007). In addition, it encompasses utilizing consistent supply chain systems, information systems, communication technologies, and operational procedures (Sarkar et al., 2001). Resource complementarity refers to the extent to which resources provided by partners are valuable for each other and when combined with in-house resources allow partners to achieve synergy and unique values (Harrison et al., 2001). The extant literature indicates the positive effects of inter-organizational fit on relationship performance, such as reducing conflict, monitoring costs, increasing synergy, exploring and exploiting new opportunities, reducing the need for formal contracts, and increasing relationship stability among partners (Das and Teng, 1998; Harrigan, 1988; Lavie et al., 2012; Parkhe, 1991, Sarkar et al., 2001).

Within a humanitarian context, McLachlin and Larson (2011) highlight inter-organizational compatibility and complementarity as two factors influencing collaborative relationships. Organizations' compatibility decreases the collaboration costs and mitigates the challenges for HOs' coordination activities (Campbell and Hartnett, 2005; Long and Wood, 1995). But, misalignment of goals, different mandates and values (e.g., neutrality and impartiality), and disparate cultures can reduce the level of compatibility According

to their mandates, HOs can be active in specific areas (e.g., health care, shelter, or food), or in different phases of humanitarian operation (preparedness, response, and recovery) (Kovács and Spens, 2011). Stockton (2002) argues that HOs' collaboration failures in Afghanistan may be due to the lack of common strategic objectives. Stoddard (2003) states that HOs' identities, policies and programming preferences go along with the goals and propensities of their country of origin or the home government. Moreover, HOs have differences with respect to their organizational culture or behavioral norms, which could serve as communication barriers among HOs and lead to misunderstanding and miscommunication (Campbell and Hartnett, 2005). Furthermore, HOs often use diverse operational methods, incompatible technologies, and different supply chain systems. Each organization sticks to its operational procedures and routines, and expects other partner(s) to adapt to its operational approach (Campbell and Hartnett, 2005). For example, many humanitarian actors have strong internal policies on needs assessments that are difficult to change through collaboration.

Another aspect of inter-organizational fit is associated with resource complementarity among partners. Scholars contend that resource complementarity has a positive impact on inter-organizational relationships (Harrison et al., 2001; Rowley et al., 2005). Accordingly, we argue that when reciprocal needs exist among HOs or when they share their resources or competencies (e.g., access to valuable information or supply chain strength), they are more likely to avoid opportunism, trust each other, and maintain their relationship. Thus, including two aspects of the inter-organizational fit, we propose:

Hypotheses H_{3a}, and H_{4a}: The fit between two humanitarian organizations (compatibility, resource complementarity) is positively associated with the mutual trust between organizations.

Hypotheses H_{3b}, and H_{4b}: The fit between two humanitarian organizations (compatibility, resource complementarity) is positively associated with the reciprocal commitment between organizations.

2.4. Relationship management capability

Organizations deal with considerable managerial complexities when organizing or handling collaborative initiatives, which may potentially lead to failure of partnerships. Increased bureaucracy, loss of flexibility,

difficulty in evaluating collaboration results, complicated accountability of joint performance, or lack of mutual familiarity between partners are among the problems HO managers deal with in collaborative initiatives. Scholars contend that relationship management capability (Schreiner et al., 2009) or collaborative process competence (Zacharia et al., 2011) supports organizations in addressing these managerial complexities within collaborative relationships. We conceptualize the relationship management capability as containing three interrelated skills: coordination, communication, and bonding.

Coordination refers to the ability to define the problem or task, to make joint decisions, to properly assign roles or responsibilities to each partner, and to evaluate the collaborative performance. Coordination skills facilitate the identification and arrangement of collaborative tasks, taking into account their interdependency and complexity (Schreiner et al., 2009). Coordination skills assist organizations in developing working procedures task executions, design interfaces, communication channels, and knowledge-sharing routines (Heide and John, 1992; Noordewier et al., 1990), enhancing the collaboration efficiency.

Communication skills include an ability to employ formal and informal methods to efficiently convey information to partners in a timely, accurate and complete manner. Bonding skills indicate an organization's ability to engage in a gradual process in which exchange partners can socially integrate and provide expressive value to their associates. Communication and bonding skills have a positive effect on mutual trust among partners (Mohr et al., 1996). Partners' open and sincere communication as well as their respectful, supportive and fair relations increase the level of trustworthiness and reliance on each other and inhibit them from acting in a way that could negatively affect each other (Schreiner et al., 2009). Accordingly, we argue that enhancement of relationship management capability is associated with mutual trust among HOs and with the higher reciprocal commitment or propensity of HOs to maintain their collaborative relationship. Thus, we propose:

Hypothesis H_{5a}: Humanitarian organizations' relationship management capability is positively associated

with the mutual trust between organizations.

Hypothesis H_{5b}: Humanitarian organizations' relationship management capability is positively associated with partners' reciprocal commitment.

2.5. Summary

Figure 1 illustrates the conceptual model linking the antecedent factors (inter-organizational fit and relationship management capability) and mediator factors (mutual trust, and reciprocal commitment) influencing collaborative performance. Table 1 provides the definitions of constructs examined in this study.

In addition, three control variables that may affect key mediating factors are included in the analysis. Relationship duration, defined as the age of a collaboration relationship between two partners, can impact mutual trust and reciprocal commitment because longer-established relationships often lead to better working relationships (Brown et al., 1996). Moreover, we control for interdependency perception. Most research accepts the premise that interdependence positively affects reciprocal commitment because dependence increases partners' desire to maintain the relationship (Hibbard et al., 2001). Furthermore, we control for temporal orientation. Engagement in collaborative initiatives is time consuming and requires resource investment (e.g., human resources and information) over the long term. In successful collaboration, long-term orientation has a positive impact on collaboration performance (Chen et al., 2004; Morgan and Hunt, 1994), especially when the uncertainty level is relatively high (Noordewier et al., 1990). Long-term orientation raises the reliability, mutual trust (Anderson and Weitz, 1992; Ganesan, 1994), and reciprocal commitment among partners. In the next section, we elaborate on the research model's constructs and present the proposed hypotheses within the model.

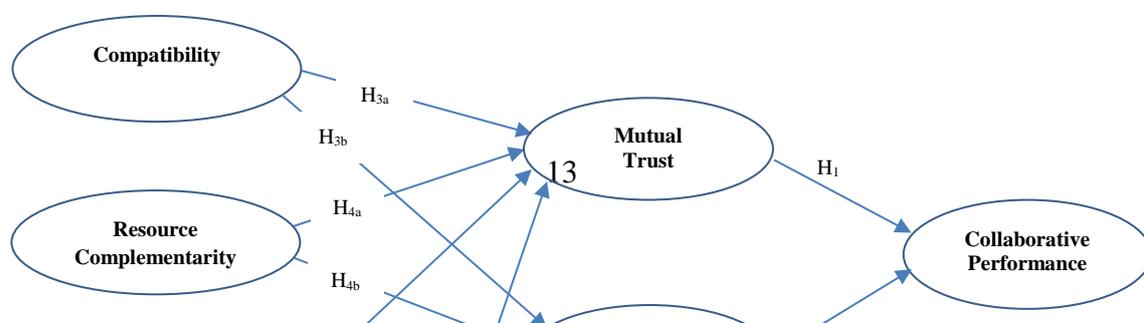


Figure 1. Research model

Table 1: Definitions of the main constructs

Constructs	Definition
Collaborative Performance (Krishnan et al., 2006)	The degree to which a partnership between two independent organizations is successful, where partners share resources (e.g., information, expertise, and infrastructure) or work closely to design and implement their operations.
Mutual Trust (Morgan and Hunt, 1994)	Confidence in partner's reliability and integrity.
Reciprocal Commitment (Gulati et al., 1994)	The degree to which both partners are willing to invest requisite resources into the collaboration.
Compatibility (Holcomb and Hitt, 2007)	The degree of congruency among organizations goals, mission, methods and technologies of operating, or timeframes for operations.
Resource Complementarity (Harrison et al., 2001)	The extent that resources provided by partners are valuable for each other and when combined with in-house resources allow partners to achieve synergy and unique values.
Relationship Management Capability (Schreiner et al., 2009)	The ability to define the problem or task, to make joint decisions, to properly assign roles or responsibilities to each partner, and to evaluate collaborative performance. The ability to efficiently convey information to partners in a timely, accurate and complete manner and to engage in a gradual process in which exchange partners could socially integrate and provide expressive value to the partners.
Control Variables:	
Relationship Duration	The age of collaborative relationship between two partners.
Temporal orientation	The extent to which partners are going to work with each other.
Interdependency	The degree to which partners are dependent on each other.

3. Research Methodology:

3.1. Research setting and sampling

The empirical context of the study is international nongovernmental organizations (NGOs) involved in humanitarian operations in countries across Africa, Asia and South America. Inter-organizational collaboration among international NGOs focuses on the joint relationship between partners. Therefore,

the theoretical constructs identified in this research are conceptualized to study the relationship between organizations, viewed from a focal organization's perspective. The measures are based on the perceptions of one key informant (Lambe et al., 2002), and the measures used were designed to examine perceptions of the dyad from one partner's viewpoint. The respondents were expected to have knowledge or experience about organizational relationships and collaboration initiatives. The target respondents are HOs' mission, program, or project directors because they are the persons primarily responsible for setting up and managing collaborative relationships. The website of the Office of the Coordinator for Humanitarian Affairs (OCHA) provides access to the contact information of international NGOs. The organizations offer diverse services (e.g., nutrition, health, water/sanitation, emergency shelter, logistics, etc.), so this sample minimizes any specific service category effect (Palmatier et al., 2007).

3.2. Survey instrument and pre-test

To test the proposed hypotheses, we conducted two tasks of construct definition and measurement items generation. First, reviewing organizational studies and operations management literature provided us the constructs' definitions and the first list of measurement items for each construct, which were verified by prior studies. Then, we adapted them to fit the context of the humanitarian field. To assess the clarity of questionnaire items and their satisfactory adaptation to the context of humanitarian operations, we requested three professors of humanitarian assistance and five humanitarian practitioners to fill out the questionnaire in front of the researcher and to raise any issues or problems found within. Based on this procedure, we clarified the constructs and associated measurement items which then raised the content validity of constructs and reliability of scale items. We then presented the questions using a web survey on the Qualtrics platform (www.qualtrics.com), reaching as many respondents as possible in a short time. To increase the survey response rate, we followed Dillman's tailored design method (Dillman, 2007), which is employed by scholars in inter-organizational relationships (Cao and Zhang, 2011; Krishnan et al., 2006). Accordingly, we pre-tested the web-survey with 17 students and alumni of a training program

in humanitarian logistics and management. The respondents were from 14 countries and affiliated with 13 humanitarian organizations, with an average of 8 years of experience in humanitarian operations. This task revealed no major concerns with the clarity of the questionnaire; however, we increased the estimated length of the survey, changed the wording of some questions, and deleted several unnecessary questions (Schotanus et al., 2010).

3.3. Data collection

The data collection started by sending out an invitation letter to 1,418 potential respondents via email, followed by five email reminders. In all communications, potential respondents were assured strict anonymity and confidentiality and were incentivized with an executive summary of the study results. The invitation letter and the explanation at the beginning of the survey stated that in order to take part, a respondent's organization should be an international NGO and have a collaborative relationship with at least one other international NGO. Upon identifying respondents as potential key informants, we qualified them by analyzing how knowledgeable they deem themselves about their own organization and their level of involvement in the collaboration between their organization and its partners (Campbell, 1955; Schreiner et al., 2009). To alleviate the problems of social desirability bias, we asked respondents to identify a collaborative relationship with an international NGO with which they are the most familiar and their organization has recently had collaboration, but not a typical or very successful one. We then requested that they answer the survey's questions based on that chosen relationship (Sethi, 2000; Sivadas and Dwyer, 2000).

At the end of the data collection phase, 226 usable questionnaires were submitted, 35 of which were discarded because they failed to meet the characteristics of target respondents (i.e., respondents were not knowledgeable about their organizations' collaboration efforts) or due to a substantial amount of missing data. We therefore concluded with 191 responses, an effective response rate of 13%. This response rate may be impacted by the fact that not all international humanitarian NGOs are engaged in a collaborative relationship with another international NGO. Furthermore, this response rate is also similar to those of

previous studies on collaborative relationships (e.g., 6 % response rate in Cao and Zhang (2011), or 7.5% response rate in Nyaga et al. (2010)). Taking late respondents as a proxy for non-respondents, we test for the non-response bias using ANOVA analysis for each of the examined constructs (Chen et al., 2013). The test yields no significant difference between early-wave and late-wave groups of respondents suggesting that the non-response bias is not significant. In addition, we contacted a subset of the non-respondent sample (15 persons) and asked them six questions from the questionnaire, and then we assessed the differences between the responses of this group and those of the first group who filled out the survey. The ANOVA analysis yields no significant difference between the two groups, again suggesting that the non-response bias is not significant.

All participants are key informants who occupy managerial positions in their organizations (head or director of mission/country, 46%; head or director of program, 32%; operations or logistics manager, 8%, head of office, 7% and other positions, 6%). Thirty-six percent of respondents have worked for their organizations for less than two years, 38% worked between 2 and 5 years, and 26% have worked for more than 5 years. Organizations can be described from different dimensions. Regarding organizations' size, 30% have less than 25 employees, 34% have between 25 and 100 employees and 36% have more than 100 employees. Moreover, the organizations provide humanitarian emergency and development services in various areas (see Figure 2).

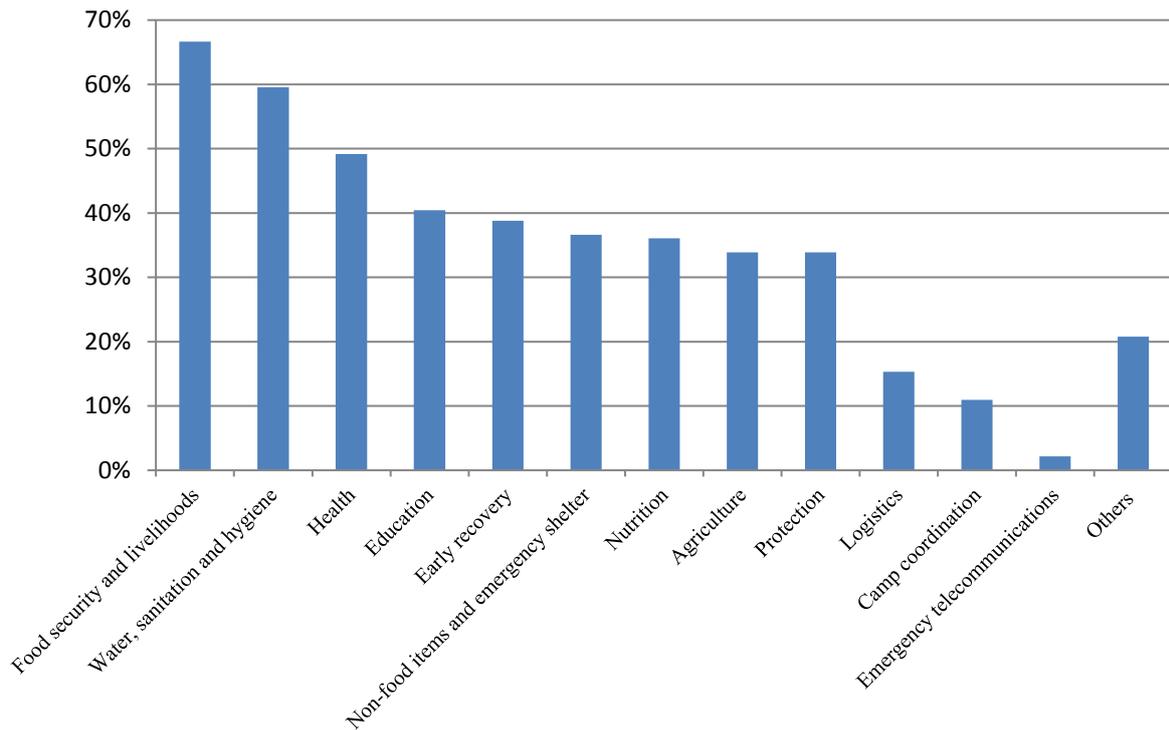


Figure 2. Organizations' main products/services

3.4. Measures

Collaborative performance as the main dependent variable of the study can be evaluated in a number of ways. We followed Krishnan et al.'s (2006) argument that when the respondents represent the key informants of organizations who are knowledgeable and involved in inter-organizational relationship initiatives, it is reasonable to rely on their judgment on collaboration success or failure. The study's three independent variables - compatibility, resource complementarity, relationship capability management - and three endogenous variables - mutual trust, reciprocal commitment, and collaborative performance - are measured by using multi-item scales. Existing tested scales from previous research were adapted and used in this study when determined as appropriate and acceptable. We utilize a seven-point Likert-type scale with end points of "strongly disagree" and "strongly agree" to measure the items of all latent variables and capture responses for all items. The exact wording of the items is presented in Appendix A.

4. Analysis and Results

We use SmartPLS 3.2, which relies on the Partial Least Squares (PLS) method to estimate the hypothesized relationships (Ringle et al., 2015). PLS is prediction-oriented and allows the researcher to assess “the predictive validity of exogenous variables” (Peng and Lai, 2012, p. 469). This study aims to assess the prediction or explanatory power of antecedent factors (i.e., compatibility, resource complementarity, and relationship-management capability). The relationships between constructs within two distinct frameworks—inter-organizational fit and relationship-management capability—are not examined in the literature; therefore, there is not a theoretical foundation anticipating their relationships, which makes PLS an appropriate method for data analysis in this study. Moreover, PLS is suitable for estimating a complex structural equation model, as proposed in this study. In conducting the model estimation, we follow the procedure advocated by Peng and Lai (2012) by evaluating PLS models in two stages: examining the validity and reliability of the measurement model and analyzing the structural model. Appendix B illustrates a list of steps and criteria within two stages of PLS application in models with reflective constructs.

4.1. Measurement model reliability and validity

To assess the measurement model, we examine the constructs’ individual-item reliabilities, the convergent validity of the measures associated with each construct, and their discriminant validity. Table 2 shows the range of factor loadings, and the composite reliability and average variance extracted (AVE) of the reflective constructs. Appendix A presents the value of each item’s loading. All item loadings on their respective constructs are greater than 0.65 and significant at the 0.001 level, indicating convergent validity at the indicator level (Bagozzi and Yi, 1988). All composite reliability values are greater than 0.80, indicating acceptable reliability (Hatcher, 1994). All AVE values are greater than 0.50, suggesting convergent validity at the construct level (Peng and Lai, 2012).

Table 2: Measurement properties of constructs

	Composite reliability	Average variance extracted	Range of factor loading
Critical values	> 0.8	> 0.5	> 0.65
Collaborative Performance	0,89	0,66	0.71 to 0.91
Reciprocal Commitment	0,90	0,76	0.85 to 0.89
Mutual Trust	0,88	0,64	0.78 to 0.81
Compatibility	0,85	0,53	0.65 to 0.77
Resource Complementarity	0,86	0,60	0.75 to 0.80
Relationship Management Capability	0,92	0,59	0.67 to 0.83
Long-term Orientation	0,87	0,69	0.79 to 0.88
Interdependency	0,80	0,67	0.74 to 0.89

To examine the discriminant validity of measures, we evaluate the theta matrix, which demonstrates that no item loaded higher on another construct than it did on its associated construct. Thus, all reflective scales exhibit satisfactory discriminant validity. Finally, we examine the discriminant validity of constructs, which represents the extent to which measures of a given construct differs from measures of other constructs in the same model. In this line, we use two methods to test the discriminant validity of constructs: Fornell and Larcker's Criterion and HTMT criterion (heterotrait-monotrait ratio of correlations). Fornell and Larcker Criterion examines whether the square root of each construct's AVE is higher than the correlations between the focal construct and all other constructs. The square roots of AVE - shown on the diagonal of the correlation matrix – are higher than the inter-construct correlations - shown off the diagonal - suggesting the discriminant validity among constructs (Table 3). In addition, assessing the discriminant validity of the measurement model through the HTMT criterion indicates that all HTMT values between reflective constructs are below 0.90, suggesting an adequate discriminant validity for all constructs (Henseler et al., 2015)_(Table 4). Overall, these statistics indicate that the psychometric properties of the model are sufficiently strong to enable interpretation of structural estimates.

Table 3. Construct correlations

	CP	ReC	MT	CO	RC	RMC
CP	0.81					
ReC	0.60	0.87				
MT	0.58	0.54	0.80			
CO	0.60	0.61	0.55	0.73		
RC	0.63	0.69	0.63	0.62	0.78	
RMC	0.70	0.73	0.71	0.72	0.71	0.77

Note. The square root of average variance extracted (AVE) is shown on the diagonal of the correlation matrix and inter-construct correlations are shown off the diagonal.

Table 4. HTMT values

	CP	ReC	MT	CO	RC
CP					
ReC	0.69				
MT	0.69	0.65			
CO	0.74	0.74	0.68		
RC	0.77	0.85	0.79	0.79	
RMC	0.79	0.84	0.82	0.85	0.85

CP=Collaborative Performance, ReC=Reciprocal Commitment, MT=Mutual Trust, CO=Compatibility, RC=Resource Complementarity, RMC= Relationship Management Capability.

4.2. Model estimation and analysis

Because PLS does not assume a multivariate normal distribution, traditional parametric-based techniques for significance tests are inappropriate. PLS uses a bootstrapping procedure to estimate standard errors and the significance of parameter estimates (Chin, 1998). The PLS path coefficients and p -values for the model are reported in Table 5. The p -values were computed based on 500 bootstrapping runs. The estimated path coefficients are interpreted as standardized beta coefficients of OLS (ordinary least squares). For example, if mutual trust changes by one, we would expect collaborative performance to change by 0.36, holding all other independent variables constant. The sign of estimated coefficients and their associated p -values indicates that mutual trust and reciprocal commitment are positively associated with collaborative performance. Similarly, resource complementarity and relationship management capability are all significantly related to mutual trust and reciprocal commitment. Thus, H_1 , H_2 , H_{4a} , H_{4b} , H_{5a} , and H_{5b} are supported. However, our hypotheses regarding the relationship between compatibility

and mutual trust (H_{3a}), and compatibility and reciprocal commitment (H_{3b}) are not supported. The long-term orientation is positively associated with mutual trust (0.265, $p < 0.01$), and reciprocal commitment (0.289, $p < 0.001$); the interdependency is positively associated with reciprocal commitment (0.103, $p < 0.1$), but the relationship duration is not significantly associated with the study's key factors. To examine the robustness of the PLS results, we computed the p -values upon 1,000 and 1,500 bootstrapping runs, which are consistent with the p -values upon 500 bootstrapping runs.

Table 5. Structural estimates

Hypothesis	Effect of	On	Coefficients	p -value	Results
H_1	MT	CP	0.364	***	Supported
H_2	ReC	CP	0.398	***	Supported
H_{3a}	CO	MT	-0.011	n.s.	
H_{3b}	CO	ReC	0.045	n.s.	
H_{4a}	RC	MT	0.191	**	Supported
H_{4b}	RC	ReC	0.199	**	Supported
H_{5a}	RMC	MT	0.403	***	Supported
H_{5b}	RMC	ReC	0.351	***	Supported

* $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

CP=Collaborative Performance, ReC=Reciprocal Commitment, MT=Mutual Trust, CO= Compatibility, RC=Resource Complementarity, RMC= Relationship Management Capability.

To evaluate the explanatory power of the research model, researchers should examine the explained variance (R-squared) of the endogenous constructs. Using R-squared to assess the structural model is consistent with the objective of PLS to maximize the variance explained in the endogenous variables. The R-squared for collaborative performance, mutual trust and reciprocal commitment are 0.45, 0.57 and 0.66, respectively, which are moderately strong (Chin, 1998) (Table 6). To evaluate the effect size of each predictor construct, we use Cohen f^2 formula. f^2 is equal to the increase in R^2 relative to the proportion of variance that remains unexplained in the endogenous latent variable. According to Cohen (1988), f^2 values of 0.35, 0.15, and 0.02 are considered large, medium, and small (Cohen, 1988). Consequently, the effect sizes of mutual trust on collaborative performance, 0.17, and reciprocal commitment on collaborative performance, 0.20, are considered medium, and those related to resource

complementarity and relationship management capability are small.

Table 6. R², Prediction, and Effect Size

Construct	R ²	Q ²	<i>f</i> ² in relation to		
			CP	MT	ReC
CP	0.45	0.27			
MT	0.57	0.36	0.17		
ReC	0.66	0.48	0.20		
RC	-	-		0.03	0.05
RMC	-	-		0.12	0.12

Note: Stone–Geisser’s Q² is calculated using the blindfolding procedure available SmartPLS software.

CP=Collaborative Performance, ReC=Reciprocal Commitment, MT=Mutual Trust, CO= Compatibility, RC=Resource Complementarity, RMC= Relationship Management Capability.

To examine the model’s capability to predict, Stone–Geisser’s Q² for endogenous constructs are 0.27, 0.36, and 0.48 for collaborative performance, mutual trust, and reciprocal commitment, respectively, which are all greater than zero, indicating acceptable predictive relevance (Peng and Lai, 2012). Finally, we conduct a *post hoc* power analysis to examine the acceptability of our study’s sample size. We focus this analysis on the smallest effect size (*f*²) in our estimated model, which is 0.034, the effect of resource complementarity on mutual trust. For this effect size, the sample size of 191 can achieve a power of 0.814 at the significance level of 0.05, which is higher than 0.80 suggesting the adequacy of sample size (Peng and Lai, 2012).

5. Discussion of Results and Implications for Research and Managers

The empirical results highlight the relational orientation (i.e., mutual trust and reciprocal commitment) as an informal governance between partners. The data analysis suggests that mutual trust and reciprocal commitment are positively associated with collaborative performance (H₁ and H₂). Together, these results imply that reciprocal commitment and mutual trust are the key drivers of collaborative

performance between international NGOs, which is consistent with the commitment-trust theory (Morgan and Hunt, 1994). Palmatier et al. (2007) suggest that in dynamic situations, commitment and trust directly affect inter-organizational performance.

The relationships between compatibility and mutual trust (H_{3a}) and compatibility and reciprocal commitment (H_{3b}) are not significant. The results suggest that compatibility between organizations' cultures, missions, objectives, procedures or technical capabilities is not strongly associated with the level of humanitarian organizations' mutual trust or reciprocal commitment. Although the results are not intuitive, considering this issue in a humanitarian context provides us with some explanation of this conclusion. When HOs have similar missions or goals, provide similar services in similar geographical regions, or have access to similar donors, the level of competition among them increases, they begin to keep some resources for themselves, or even take actions that would negatively affect the other partner. Compatibility may raise competition among HOs and encourage them to keep their operational advantages to themselves (Schulz and Blecken, 2010) in order to be more successful, which may decrease the level of mutual trust and reciprocal commitment among them. Conversely, there are examples of organizations productively working with one another even when their values or cultures suggest incompatibility. The collaboration between the United Methodist Committee on Relief and Muslim Aid is one example of a very successful partnership in Sri Lanka in 2006 (Shaw-Hamilton, 2011). These organizations shared staff, resources, supplies and logistical support. As a result, partners were able to achieve a high degree of joint activity despite the cultural distances that exist between them.

Consistent with the model's prediction, the complementarity of resources has a significant positive effect on mutual trust (H_{4a}) and reciprocal commitment (H_{4b}). The result suggests that shared complementarity of resources provides each partner with a valuable pool of assets with which to reach goals that may not have been possible independently. It reduces the propensity for competition among partners, enhances beliefs about each other's goodwill and capability, and increases the motivation to preserve the relationship and to expend maximum efforts to maintain it. For example, in the Haiti emergency, RedR

and Bioforce combined their capacities and resources and, in so doing, effectively avoided both competition for scarce management and training staff, and duplication of efforts (Russ and Downham, 2011).

The data confirm the significant effects of relationship management capability on mutual trust and reciprocal commitment (H_{5a} and H_{5b}). Relationship management capability contains skills to efficiently coordinate the relationship, appropriately communicate and productively network with each other. The results suggest that a higher level of relationship management capability helps to increase mutual trust among partners and to raise the reciprocal commitment among HOs. The Tsunami Evaluation Coalition Synthesis Report (Cosgrave, 2007, p. 121) recommends that HOs make an effort “to increase their disaster response capacities and to improve the linkages and coherence between themselves.”

Prior research on collaborative relationships has demonstrated the effect of inter-organizational fit and relationship management capability on collaboration outcomes (Madhok, 1995; Sarkar et al., 2001; Schreiner et al., 2009). We advance this literature by examining both perspectives and offer an insight on the relative efficacy of each perspective in explaining the variation of collaboration performance within a humanitarian setting. Building on the relational view, first, we tested the relationships between two variables of mutual trust and reciprocal commitment and collaborative performance. Our study echoes the prior research findings on the critical roles of these relational variables in enhancing collaborative satisfaction among international HOs (Morgan and Hunt, 1994; Nyaga et al., 2010; Palmatier et al., 2007). HOs face an uncertain environment that requires them to make speedy decisions in ambiguous settings (Huber et al., 1990). Similar to collaborations in R&D or service industries (Krishnan et al., 2016), monitoring and evaluation of humanitarian operations is difficult. Moreover, the coordination of joint activities within the complex environment of a disaster is not an easy task. Consistent with Shah and Swaminathan’s finding (2008), the difficulties of collaboration process management and performance evaluation within a humanitarian setting triggers managers to value mutual trust and commitment in the partnerships.

In addition, our study contributes to the research on the antecedents leveraging the mutual trust and commitment among organizations within non-equity arrangements (Weber, 2000). Whereas some studies have suggested that increasing the level of inter-organizational compatibility (i.e., strategic and operational compatibility) increases trust and commitment among partners, this may not apply in a humanitarian setting. In an episodic type of collaboration among HOs, with high amounts of diversity among their organizational characteristics and operational routines, and restricted scope for collaboration, partners may not be interested in adapting each other's goals or vision, or may not find it easy to change their operating routines (Lavie et al., 2012). Therefore, we complement prior literature by suggesting that in this setting, relationship management capability facilitates the mutual trust and reciprocal commitment among partners, and inter-organizational compatibility has limited effect. In other words, the skills or capabilities of organizations in managing the collaboration tasks are vital for meeting the collaboration objectives (Schreiner et al., 2009; Zacharia et al., 2011).

Together, these results imply that mutual trust and reciprocal commitment are the key drivers of collaborative performance between international humanitarian NGOs. Moreover, we propose and have evidence of the significant effects of inter-organizational resource complementarity and relationship management capability on collaborative performance through their influence on mutual trust and reciprocal commitment. Therefore, given the present diversity of HOs' characteristics, the success of collaboration is associated with the partners' level of understanding of each other's objectives, operations, and values (Herlin and Pazirandeh, 2012; Lavie 2012) and to the extent to which organizations efficiently communicate and coordinate their joint activities (Schreiner et al., 2009).

The extracted knowledge from this study supports practitioners in their efforts to recognize the significant drivers of, or impediments to, horizontal collaboration and, following this, assists in identifying solutions to address collaborative barriers. These findings suggest that sharing valuable resources and developing relationship management capability (i.e., coordination, communication and bonding skills) drives mutual trust and reciprocal commitment. In other words, if international NGOs do not share valuable resources,

or do not invest in developing strong human resources and relationship management skills, collaborative initiatives will not work properly. This conclusion is consistent with Street's study (2011) in which it is argued that the amount of required management capacity is often underestimated, with junior staff of HOs engaged in collaborative initiatives amid frequent staff changes, scant leadership, and a strictly limited decision-making capacity.

Donors also have a critical role to play in increasing the capabilities of HOs, changing their approach to avoid promoting unhealthy competition and instead, encouraging HOs to engage in collaborative initiatives that eventually lead to efficient and effective humanitarian operations. To this end, donors may revise their contract protocols to incentivize organizations to invest in relationship management capabilities and adopt a long-term orientation in their planning and operational activities. Along these lines, operations management and organizational studies have documented lessons learned within commercial sectors, which could be elaborated upon, tested and applied in the humanitarian sector.

6. Conclusions, Limitations and Potential Areas for Further Research

Both HOs and donors recognize the benefits of inter-organizational collaboration. Donors are demanding greater accountability, becoming less tolerant of inefficiencies in relief or duplication of effort, and therefore are strongly encouraging relief organizations to collaborate (Schulz and Blecken, 2010; Thomas and Kopczak, 2005). This study contributes to collaboration literature specifically in the context of the humanitarian supply chain. Using concepts and theories developed within organizational sciences and supply chain management, as well as evidence from practitioners' reports, provides a rich, multidisciplinary perspective from which to explore the research phenomenon. The study contributes to our understanding of the determinants of collaboration among HOs using a multidisciplinary approach that has been recently recommended in operations management (Ketchen, 2007; Miles and Snow, 2007). Methodologically, the study could well be considered as belonging to those few in which empirical methods are used for (large-scale) data collection and analysis in the context of humanitarian operations.

More specifically, this study suggests that resource complementarity and relationship management capability are antecedent factors that drive collaborative performance through their effects on mutual trust and reciprocal commitment. Managers should take into account the level of collaboration and acknowledge that pursuing a higher level of collaborative performance is associated with a greater degree of commitment and trust. This necessitates managerial approaches that enhance these characteristics through the sharing of complementary resources and the strengthening of coordination and relational skills.

This study contains some limitations. First, we focused on a few antecedent factors to empirically investigate the drivers and barriers of horizontal collaboration among HOs, however future studies can explore the value of including new perspectives and constructs to the proposed model, or investigate the suggested constructs in detail. For example, there is an opportunity to investigate the influence of culture or cross-cultural differences on collaborative performance. Cannon et al. (2010) note the few studies that investigate supply chain relationships in the context of different cultures. The regions' cultures (i.e., religion, traditions, and social habits) can alter or preclude the effectiveness of operations management practices (e.g., facility location, layout design, supply chain strategies) (Metters et al., 2010). Disparity of power among partners is another related subject that requires more rigorous investigation within a humanitarian setting. Organizations with less power (i.e., resources or access to information and media) are less motivated to engage in collaboration efforts or even resist a mandate's request for collaboration in this environment (Campbell and Hartnett, 2005). Another suggestion for future study is the investigation of relationship-specific investment as an additional key driver of collaborative performance. Commitment-trust is associated with the will and motivation of partners to save or continue the relationship, and relationship-specific investment is associated with the efficiency of the relationship (Palmatier et al., 2007). Holcomb and Hitt (2007, p.471) refer to several types of relationship-specific investments, including "investments in facilities, equipment, personnel, and firm- or process-specific training associated with the production of goods or services that have little or no use outside the exchange

relationship.” In a humanitarian context, relationship-specific investment could be an investment in several areas, such as training programs (e.g., logistics), procedures for conducting joint tasks, designing interfaces and communication channels, knowledge sharing routines, dedicated human resources and specific coordinating initiatives.

Second, this study was conducted at the inter-organizational level considering the relationship between two organizations. However, HOs collaborate with many organizations within different types of ad hoc or established networks. Thus, investigating collaborative outcomes (i.e., capability building, knowledge exchange, joint action, and community building) at this higher level of collaboration could be very insightful. Along these lines, social network analysis, as a popular method for analyzing the inter-organizational relationships, can give insights on the validity of our proposed model or explain why HOs’ networks are formed, disintegrate, and succeed or fail (Borgatti and Li, 2009).

Third, the theoretical constructs in this study are investigated at the inter-organizational level, but viewed solely from a focal organization’s perspective. Future studies using the perception of respondents from both sides of the collaborative relationship can shed light on the findings. Moreover, using the perception of single respondents per organization should be considered as a limitation of the study. While admitting this limitation, because our questions are “high-level and not-function-specific,” a single key respondent approach is appropriate (Pagell and Krause, 2008, p. 2). Nevertheless, future studies considering multiple respondents per organization increase the reliability of results.

Finally, it is worth noting that employing empirical research methods has recently been emphasized by scholars for strengthening the empirical base of operations management . Accordingly, there is a need for similar studies in humanitarian operations using empirical methods (e.g., cross-sectional or longitudinal studies, well-structured single or multiple case studies, field studies, or lab experiments) to explore the collaborative performance among HOs.

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Appendix A: Measurement Scale Items

Constructs/Measures (Scale Sources)		Item Loadings
Collaborative Performance (Krishnan et al., 2006; Wang et al.,2010)		
CP1	The objectives for which the collaboration was established are being met.	0.796
CP2	This partner seems to be satisfied with the overall performance of the collaboration.	0.833
CP3	Our organization is satisfied with the overall performance of the collaboration.	0.906
CP4	Our association with this partner has been a highly successful one.	0.705
Mutual Trust (Zaheer et al., 1998; Duffy, 2008; Carson et al.,2006)		
MT1	Both organizations are trustworthy.	0.806
MT2	Both organizations would not deliberately take action that would negatively affect each other.	0.799
MT3	Both organizations would not use confidential information to take advantage of each other.	0.783
MT4	Both organizations expect that conflicts would be resolved fairly.	0.812
Reciprocal Commitment (Ganesan,1994 ; Morgan and Hunt,1994; Sarkar et al.,2001)		
ReC1	Both organizations view the relationship as very important to them.	0.848
ReC2	Both organizations view the relationship as deserving their maximum efforts to maintain.	0.875
ReC3	Both organizations view the relationship as something they are willing to dedicate whatever people and resources are necessary to make it a success	0.888
Compatibility (Sarkar et al., 2001; Cheung et al., 2010; Jap, 1999)		
CO1	There is a match in both organizations' philosophies/approaches to humanitarian operations.	0.753
CO2	Both organizations share a similar organizational culture.	0.731
CO3	Both organizations support each other's objectives.	0.717
CO4	The technical capabilities of the two organizations are compatible with each other.	0.647
CO5	The organizational procedures of the two organizations are compatible.	0.768

Constructs/Measures (Scale Sources)		Item Loadings
Resource complementarity (Cheung et al., 2010; Lambe et al.,2002)		
RC1	The resources brought into the collaboration by each organization have been very valuable for the other.	0.751
RC2	The resources brought into the collaboration by each organization have been significant in getting the job done.	0.777
RC3	Both organizations have separate abilities that, when combined, enable to achieve goals beyond their individual reach.	0.804
RC4	Both organizations have complementary strengths that are useful to the relationship.	0.775
Relationship Management Capability (Liu et al., 2012; Schreiner et al.,2009; Kaufmann and Carter,2006; Morgan and Hunt, 1994)		
RMC1	Both organizations use consistent policies and decision-making procedures in this relationship.	0,685
RMC2	Both organizations always take into account each other's concerns and feedback in their policies and programs.	0,67
RMC3	When discussing points of disagreement, the representatives from both organizations always try to see the other's point of view.	0,765
RMC4	The representatives from both organizations openly address problems when they arise.	0,805
RMC5	The representatives from both organizations respect each other.	0,765
RMC6	Both organizations provide each other with information that helps both parties.	0,834
RMC7	Both organizations view information sharing and transparent communication between the sides as key.	0,806
RMC8	Both organizations have open and two-way communication.	0,79
Temporal Orientation (Cannon et al.,2010; Marginson et al., 2010)		
TO1	Both organizations focus on long-term goals in their relationship.	0.877
TO2	Both organizations expect to work together for a long time.	0.824
TO3	Both organizations concentrate their attention on issues that will impact targets beyond the next	0.789
Interdependency (Brown et al., 1996)		
I1	It would be costly for our organization to lose its collaboration with this partner.	0.885
I2	This partner would find it costly to lose the collaboration with our organization.	0.741

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