# The Internal Predictive Factors of Humanitarian Logistics Performance: The Case of Amhara National Regional State, Ethiopia

Melkamu Beyene
Department of Logistics and Supply Chain Management, Public Procurement and Property Disposal Service, Amhara National Regional State, Ethiopia

**Abstract**
The main objective of this study was to examine internal predictive factors that affect the performance of humanitarian logistics in Amhara National Regional State humanitarian aid organizations. To this study purpose, quantitative and qualitative mixed methods design was employed. Sample participants were selected through comprehensive sampling method. To collect data from participants, a questionnaire comprised of 32 Likert scale items and semi-structured key informant interview questions were developed and used. The instrument had the reliability coefficient greater than .75 Cronbach's Alpha ($\alpha$). The stepwise multiple regression analysis and percentage were computed via SPSS version 20, while qualitative data were analyzed thematically. The present study found the availability of professional staff, and institutional learning as internal factors that significantly predict the performance of humanitarian logistics. It is concluded that some internal determinant factors have had much more effect on the performance of humanitarian logistics than other variables. To this end, the need to identify critical success factors of humanitarian logistics performance is recommended.
**Key words:** Internal factors; Disaster; Logistics; Humanitarian Organization; Amhara

## 1. Introduction

In this era, humanitarian organizations have shouldered the peculiar role to save the life of people affected by natural or man-made disasters. In this regard, a study by Tatham and Pettit (2010) underscored that supplying humanitarian aids, such as food, water, medicines, and so forth, is a life-saving action, especially when it comes to drought and famine is conceived to be the responsibility of humanitarian organizations. Likewise, Scarpin and Silva (2014) contend that the government and private aid organizations have helped the victims by donating money, medicine, food, shelter in response to environmental disasters. Moreover, Jahre, Ergun, and Goentzel (2015) pinpointed that temporary shelter, health support, water and sanitation, food and cooking equipment as basic assistance required in the backwash of a disaster to fix disaster affected people.

However, Thomas and Kopeczak (2005) attested the existence of many problems with emergency relief and life saving logistics activities of humanitarian aid organizations. In this regard, great emphasis was not given to humanitarian logistics and logistics skills remained less developed (Van Wassenhove, 2006). Hence, the role and significance of logistics is not well understood or appreciated by humanitarian relief organizations and the donors (Thomas, 2003 cited in Usman & Wismadi, n.d.).

In the same vein, the nature of humanitarian crisis in Ethiopia suggests the need for concerted disaster risk reduction and disaster mitigation (Mowjee, 2008). In this regard, the surveyed beneficiaries indicated that relief food assistance has been integral to surviving drought-related impacts following the failure of harvests in the district (USAID, 2016). In spite of this fact inadequate logistics capacity is critically hampering the drought response in Ethiopia (USAID, 2016). This problem presumably is due to internal or organizational factors that may hinder the performance of humanitarian logistics.

To maintain efficient and effective humanitarian logistics there should be a strong collaboration between government, aid organizations, local NGOs, and international NGOs. However, limited partnership between international and Ethiopian NGOs in the arena of humanitarian aid is found to be a critical problem in humanitarian logistics (Mowjee, 2008). As to Mowjee one obstacle to the open sharing of information in meetings and effective coordination as well as partnership is the lack of trust amongst humanitarian actors. On the other hand, Walton, Haselkorn, and Mays (2011) found that heavy workload in humanitarian logistics was exacerbated by manual communication and tracking systems that required the emergency logistics team to perform not only high-cognition tasks, such as analyzing quotes to identify the best value, but also low-cognition tasks, such as remembering to check the delivery service tracking website and pass along a shipment update to the field requestor. It is, therefore, important to note that the absence of collaboration and advanced communication system are the internal factors that may negatively impact the performance of humanitarian logistics.

According to Slack and Lewis (2002 as cited in Kunz & Reiner, 2012), performance in humanitarian logistics can be seen as the result of the strategic reconciliation of relief organizations' enablers (resources, processes and capabilities) and the requirements of the beneficiaries (e.g. survivability, speed, safety, sustainability). If there is a gap (unsatisfactory performance), it is assumed that relief organizations will adapt their strategies, thus dealing

with the operational decision areas (allocation of resources, level of cooperation, outsourcing, etc.), in order to reach a strategic fit between the enablers and the requirements of the beneficiaries (Kunz & Reiner, 2012). In doing so, it is essential to identify the internal factors that best predict the performance of humanitarian logistics. Identifying the significant predictors certainly helps the humanitarian aid organizations to invest their collective effort to resolve the problems related with those identified prominent internal determinant factors of logistics performance.

In spite of the aforementioned scenarios, a large body of research evidence has asserted that humanitarian logistics performance has been bounced by countless organizational or internal challenges. In line to this, Van Wassenhove (2006) stated that

For years, humanitarian logistics has been struggling for recognition. It has been locked into a vicious circle where lack of understanding for the function and its importance have meant lack of inclusion in planning and budgetary processes, resulting in logistics requirements not being met (p. 476). Until fairly recently humanitarian logistics was a back-office function that was not given proper attention and logistics skills remained underdeveloped (p. 475).

Similarly, a study by Kovacs and Spens (2009) on the challenges in humanitarian logistics of Ghana has found limits in use of funding, lack of coordination, and lack of trained logisticians as major internal challenges of humanitarian logistics. On the other hand, a study conducted by Fritz Institute (2005) found lack of recognition of logistics, lack of professional staff, and in-adequate use of technology as internal challenging factors. However, these studies did not identify the internal factors that significantly predict the performance of humanitarian logistics.

Humanitarian logistics in Ethiopia, like in other countries, is not free from organizational or internal factors hindering logistics performance. In this regard, limited partnership between international and Ethiopian NGOs, and distrust across the full range of humanitarian organizations were the obstacles of humanitarian logistics in Ethiopia (Mowjee, 2008). If local and international humanitarian mistrust each other, coordination and sharing in the arena of humanitarian logistics may be problematic. Mowjee also identified inflexibility of INGO to respond to changing needs because they were based on donor priorities instead of community realities as one challenge. Moreover, as to United Nations views, inadequacy of logistics capacity to manage substantial increases in relief food assistance is hindering the drought response in Ethiopia (USAID, 2016). However, the study on the internal factors that significantly predict the performance of humanitarian logistics in Ethiopia was found to be very scant.

In the same vein, there was no recent study which investigated the internal determinant factors that significantly predict humanitarian logistics performance in Amhara National Regional State. Thus, the present study was intended to examine the predictive effect of internal factors on the performance of logistics in humanitarian aid organizations of Amhara National Regional State. To this end, this study sought to answer the question: To what extent do the internal factors predict the performance of humanitarian logistics in Amhara National Regional State?

## 2. Previous Studies

Regarding the recognition of the importance of logistics, a study by Van Wassenhove (2006) found that most decisions during a relief operation have been made by the program staff who controls the budget by neglecting the participation of logisticians. This implies that humanitarian organizations seem to undervalue the role of logisticians. Likewise, disaster affected population's need assessment team which is organized by humanitarian aid organizations fail to include logisticians (Van Wassenhove, 2006). Given this real practice, how can a logistician understand what to provide in what amount so as to respond to crisis affected people's needs? Based on the above mentioned evidence, it may be logical to infer that logisticians are not still considered as the vital staff members in the operation of emergency relief. Moreover, studies have attested that logistics function in the humanitarian sector is under-recognized, under-utilized and under-resourced (Thomas & Kopczak, 2005).

On the other hand, lack of professional staff has cited as internal factor that affect the performance of humanitarian logistics. However, Telford and Cosgrove (2007) indicated that humanitarian organizations are defined by their personnel, who share a common value system based on alleviating the suffering of those affected by disasters and humanitarian emergencies. To the contrary, the practical world experiences lack of available humanitarian logisticians which is considered as another important challenge facing the performance of humanitarian logistics (Fritz Institute, 2005).

Similarly, Kovacs, Tatham and Larson (2012) strengthen the fact that peoples who are working in logistics department are coming from diverse and varied backgrounds and those obtained their knowledge of logistics operation through trial and error experience by doing multiple disaster operations over several decades. Consequently, Kovacs and Spens (2011 cited in Overstreet et al., 2011) advised humanitarian organizations a need for establishment of humanitarian-academic partnerships to improve training, education, and research to improve the skill and capacity of logisticians. However, the practical experience in this area shows that majority of people in humanitarian aid organizations with logistics responsibilities do not have proper training in logistics.

Another internal factor that could affect the performance of humanitarian logistics is the use of advanced

technology. In this regard, a study by Thomas and Kopczak (2005) in the private sector attested that supply chain technology has enabled the transformation of the logistics function from a secondary to a strategic one. Therefore, decision makers have the opportunity to have different options to create efficiencies. In the same vein, Long and Wood (1995) assured in their study that using the information system is a key determinant factor for the success of a humanitarian logistic. However, the practical experience in different humanitarian aid organizations indicates that information systems put in place to help meet emergency program requirements are very incomplete, ineffective or inefficient (Maxwell & Watkins, 2003). Moreover, various studies (Oloruntoba & Gray, 2006; Thomas & Mizushima, 2005 cited in Overstreet et al., 2011) found that logistics operations in different humanitarian aid organizations are still largely manual. Therefore, it is mostly common for aid agencies to have multiple incompatible information systems about their responsibilities in the operation of logistics in emergency relief (Maspero & Itmann, 2008 cited in Overstreet et al., 2011).

Institutional learning plays a pivotal role for the development of capacity and skills of logisticians in relief operations. Accordingly, practical experiences obtained in the field operation of emergency relief are vital for experience sharing and makes institutional learning perfect. Otherwise, the lesson learned in one relief operation could not be passed on to other logisticians of a given organization (Fritz Institute, 2005). However, according to the study by Chandes and Pache (2010 cited in Demeke, 2016), lack of real profession path for field logisticians and the stressful nature of the work of humanitarian logistics are to be blamed for such a huge staff turnover. Moreover, according to the study of Fritz Institute (2005) logistics staff turnover accounts 80% annually as result the situation hampered the ability of humanitarian aid organizations to build and maintain institutional memory and contextual knowledge (Telford & Cosgrove, 2007). So that, it is wise to say that organizing, analyzing and sharing the lessons learnt institutionally as well as other humanitarian community would have a considerable benefit to enhance the logistics performance.

Humanitarian aid organization's intra-organization and inter-organization collaboration is very important to enhance the performance of humanitarian logistics. In line to this, most practices in humanitarian aid organizations witnessed that effective and efficient operation of logistics performance depends on successful management of internal and external relationships (Christopher, 2005). However, the study by Fritz institute (2005) indicates that there was lack of collaboration among logisticians of various humanitarian aid organizations. The above stated fact is strengthened by Grant (2007) who showed that there is no strong agreement between NGO participants in emergency relief during needs assessment process and data to be captured.

Lack of collaboration among participants in emergency relief activity was ascertained further by Telford and Cosgrove (2007), which observed very rare trend in sharing resources and information among multiple NGOs involved in Asian tsunami. Beamon and Kotleba (2006) suggested that organizations still did not develop universally accepted procedures rather they develop their own procedures independently. In fact, according to Chandes and Pache (2010 cited in Demeke, 2016) after 1999 up to yet there has been an increase demand for multi-agency collaboration since NGOs are in direct competition for donor funding and other resources such as warehousing and vehicle fleet. However, as to his conclusion lack of coordination affects performance of humanitarian logistics operations and participants in emergency relief should collaborate to engage in collective action for achieving positive impact on their logistics performance.

## 3. Methods and Materials

- ### *Target Population*

The Organization for Rehabilitation and Development Agency (ORDA), Amhara National Regional State Disaster Prevention and Food Security Agency (ANRS DPFSA), and Save the Children were target population of this study. These organizations were selected because of the fact that they were actively taking part in disaster-affected people's relief activities compared to other organizations. Furthermore, department heads of logistics department, logistics officers, emergency relief storekeepers, and procurement officers who were working in the aforementioned organizations were used as a source of data.

- ### *Sample Size and Sampling Procedures*

After humanitarian aid organizations were selected, employees that were working in these humanitarian aid organizations were selected through comprehensive sampling technique. As a result, all employees working in these selected organizations were involved in this study.

**Table 1. Sample distribution across sex and organization**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Sex | Male | 49 | 80.3 | 80.3 | 80.3 |
| | Female | 12 | 19.7 | 19.7 | 100.0 |
| | Total | 61 | 100.0 | 100.0 | |
| Organization | Save the Children | 21 | 34.4 | 34.4 | 34.4 |
| | ORDA | 21 | 34.4 | 34.4 | 68.9 |
| | ANRS DPFSA | 19 | 31.1 | 31.1 | 100.0 |
| | Total | 61 | 100.0 | 100.0 | |

As can be seen from the above table, from the sample participants involved in the study 49(80.3%) were male, while 12(19.7%) were female. Table 1 delineated that from the total of 61 participants, 21(34.4 %) were from Save the Children, and similarly 21(34.4%) were from Organization for Rehabilitation and Development Agency (ORDA). Likewise, the sample participants from Amhara National Regional State Disaster Prevention and Food Security Agency were 19 (31.1%). This result attests that the number of participants involved in this study was almost equal across humanitarian aid organizations.

- *Data Collection Instruments*

**Questionnaire:** The hypothetical internal predictor variables of this study were the recognition of logistics, availability of professional staff, institutional learning, collaboration, and use of information technology. The questionnaire items for these internal factors were 32 items. Hence, the questionnaire for the recognition of logistics, adequate use of information technology, institutional learning, and collaboration had Likert type item scales ranging from very poor (1) to very good (4), while for the availability of professional staff ranging from very low (1) to very high (4). The reliability of items was tested using Cronbach's Alpha (α). Accordingly, the reliability measures of instruments for the availability of professional staff (5 items), institutional learning (6 items), use of information technology (5 items), and collaboration (10 items) were coefficient alpha (α) of .86, .89, .76 and .81, respectively.

**Key informant interview:** To triangulate the data gathered through questionnaire and to get in-depth information, semi-structured interview items were prepared and key informant interview was conducted on five informants.

- *Data Analysis Techniques*

The data gathered through questionnaire were coded, entered into computer, cleaned and then analyzed using SPSS version 20. Hence, descriptive statistics, and stepwise multiple regression analysis techniques were employed. The quantitative results were substantiated and triangulated with qualitative results under discussion section.

- *Stepwise Multiple Regression Model*

PeHuLo = 2.086+.592*(AvPrSt) +.399*( InLe)……………Equation (1)

Where,
- ➢ PeHuLo - Performance of Humanitarian Logistics;
- ➢ AvPrSt - Availability of Professional Staff, and
- ➢ InLe - Institutional Learning.

## 4. Results and Discussion
### 4.1 Results
**Table 2. Correlation matrix of internal (organizational) factors, N=61**

| Variables | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|
| Logistics Performance | 1.000 | | | | | |
| Recognition of Logistics | .291* | 1.000 | | | | |
| Availability of professional staff | .408** | .461 | 1.000 | | | |
| Adequate use of technology | -.013 | .088 | .009 | 1.000 | | |
| Institutional Learning | .327** | .138 | -.009 | .233* | 1.000 | |
| Collaboration | .244* | .637*** | .509*** | -.110 | .329* | 1.000 |

- *$p<.05$; **$p<.01$; ***$p<.001$

The results indicate a weak positive correlation between logistics performance and recognition of logistics($r$=.291, $p$=.012); a moderate positive correlation between logistics performance and availability of professional staff($r$=.408, $p$=.001); a moderate positive correlation between collaboration and availability of professional staff ($r$=509, $p<.001$); a weak positive correlation between logistics performance and institutional learning($r$=.327, $p$=.005); and a weak positive correlation between logistics performance and collaboration ($r$=.244, $p$=.029).

Likewise, the association between availability of professional staff and recognition of logistics was

moderately positive ($r$=.461, $p$<.001), and the relationship between recognition of logistics and collaboration was also positive and moderately strong ($r$=.637, $p$<.001). However, the result depicts significantly weak correlation between institutional learning and adequate use of technology ($r$=.233, $p$=.036).

**Table 3. Multiple regression model Summary for internal (organizational) predictors**

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate | Change Statistics | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | R Square Change | F Change | df1 | df2 | Sig. F Change |
| 1 | .408ᵃ | .166 | .152 | .54757 | .166 | 11.777 | 1 | 59 | .001 |
| 2 | .525ᵇ | .276 | .251 | .51477 | .109 | 8.758 | 1 | 58 | .004 |

a. Predictors: (Constant), Availability of professional staff
b. Predictors: (Constant), Availability of professional staff, Institutional Learning
c. Dependent Variable: Performance of Humanitarian Logistics

The coefficient of determination ($R^2$) tells us the proportion of the variance in the dependent variable (performance of humanitarian logistics) that can be explained by variation in the independent variables (availability of professional staff and institutional learning, in this case). Thus, 27.6% of variance in performance of humanitarian logistics can be explained by the differences in the availability of professional staff and institutional learning (larger the number of professional staff, higher performance of humanitarian logistics, the same is true for institutional learning). Moreover, the $R^2$ change value of .166 and .109 respectively implied that 16.6 percent of variance in performance of humanitarian logistics was due to availability of professional staff, while 10.9 percent variance in performance was due to institutional learning.

**Table 4. Multiple regression model fit tests**

ANOVAᵃ

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| 1 | Regression | 3.531 | 1 | 3.531 | 11.777 | .001ᵇ |
| | Residual | 17.690 | 59 | .300 | | |
| | Total | 21.221 | 60 | | | |
| 2 | Regression | 5.852 | 2 | 2.926 | 11.042 | .000ᶜ |
| | Residual | 15.369 | 58 | .265 | | |
| | Total | 21.221 | 60 | | | |

a. Dependent Variable: Performance of Humanitarian Logistics
b. Predictors: (Constant), Availability of professional staff
c. Predictors: (Constant), Availability of professional staff, Institutional Learning

As portrayed in the above ANOVA table, the multiple regression model was statistically significant predictor of the performance of humanitarian logistics ($F$ (2, 58) = 11.042, $p$<.001). Thus, the model was considered as a good predictor of performance of humanitarian logistics based on the availability of professional staff and humanitarian organizations institutional learning experience.

**Table 5. Summary of multiple regression analysis coefficients explained by internal predictors**

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. | Correlations | | |
|---|---|---|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | | | Zero-order | Partial | Part |
| 1 | (Constant) | 2.332 | .152 | | 15.354 | .000 | | | |
| | Availability of professional staff | .588 | .171 | .408 | 3.432 | .001 | .408 | .408 | .408 |
| 2 | (Constant) | 2.086 | .165 | | 12.630 | .000 | | | |
| | Availability of professional staff | .592 | .161 | .411 | 3.678 | .001 | .408 | .435 | .411 |
| | Institutional Learning | .399 | .135 | .331 | 2.959 | .004 | .327 | .362 | .331 |

a. Dependent Variable: Performance of Humanitarian Logistics

As Table 5 depicts, the predicted performance of humanitarian logistics when there is no available professional staff and no institutional learning is 2.086. As indicated in the above table, the slope of availability of professional staff was .592. This means that for every one unit increase in professional staff, performance of humanitarian logistics increases by .592, after controlling for institutional learning. This result was statistically significant ($t$=3.678, $p$=.001).

Similarly, the slope of institutional learning was .399. This means that for every one unit increase in institutional learning, the performance of humanitarian logistics increases by .399, after controlling the availability of professional staff. This result was statistically significantly different from zero ($t$=2.959, $p$= .004).

As showed in the above table, the availability of professional staff has relatively higher contribution

(standardized Beta of .411) in predicting the performance of humanitarian logistics compared to institutional learning (standardized Beta of .331). However, both availability of professional staff and institutional learning were statistically significant predictors of humanitarian logistics performance. Some of internal or organizational variables that were not significant predictors of the model were removed. As a result, recognition of logistics, adequate use of technology and institutional collaboration were discarded from the model because of non significant contribution in predicting performance of humanitarian logistics ($p$=.574, $p$=3.93 & $p$= .411, respectively). Because of the fact that they did not satisfy probability of $F$-to-enter (p<= .05), the recognition of logistics and collaboration were removed from the model even though they have statistically significant relationship with performance of humanitarian logistics. This shows that the existence of the relationship between independent variable and outcome variable may not lead to infer the existence of variation in outcome variable that could be explained by independent variable. Hence, existence of correlation between two variables may not foretell whether or not independent variable predicts the variation in dependent variable.

## 4.2 Discussion

The coefficient of determination ($R^2$) tells us the proportion of the variance in the dependent variable (performance of humanitarian logistics) that can be explained by variation in the independent variables (availability of professional staff and institutional learning, in this case). The results revealed that the 27.6% of variance in performance of humanitarian logistics can be explained by the differences in the availability of professional staff and institutional learning (larger the number of professional staff, higher performance of humanitarian logistics, the same is true for institutional learning). However, lack of professional staff and lack of institutional learning were found to be the distinguishing features of contemporary humanitarian logistics of aid organizations throughout the globe (Fritz Institute, 2005, Thomas & Kopczak, 2005, Van Wassenhove, 2006). This shows that despite the highest effect of professional staff availability and institutional learning on the performance of humanitarian logistics, they are seemingly given less attention by humanitarian aid organizations and concerned stakeholders.

Finding from this study also shows that 16.6% of variance in performance of humanitarian logistics is due to availability of professional staff, and for every one unit increase in availability of professional staff, performance of humanitarian logistics increases by .592 and vice versa, after controlling other predictor variables. This result is statistically significant ($t$=3.678, $p$=.001). This result is consistent with previous findings that affirmed that for a unit increase in availability of adequate professional staff, the performance of humanitarian logistics will increase by 0.179 holding other factors constant (Demeke, 2016). This indicates uncompromising effect of professional staff availability on humanitarian logistics performance. This result further foretells that the humanitarian aid organizations should have awakened interest and scheduled training programs in order to capacitate logisticians.

To validate quantitative results, the question "How do you evaluate the professionalism of logisticians in your organization?" was raised to key informants. To this question, three key informants attested that there was shortage of training and professional experience and skill of logisticians was not up to standard. To the contrary, two interviewees reported that there was no problem related to logisticians' professional skills and experiences. This difference may be due to varied understanding of what is mean by professionalism and professional competency.

Despite the aforementioned fact, lack of professional staff was found to be the distinguishing feature of contemporary humanitarian logistics of aid organizations throughout the globe (Fritz Institute, 2005; Thomas & Kopczak, 2005; Van Wassenhove, 2006). Likewise, Pettit and Beresford (2009) attested that the limited transferability of commercial logistics and supply chain solutions is exacerbated by the shortage of technical knowledge in many aid agencies. They further stated that there are insufficient experienced logisticians working in the humanitarian aid organizations so that the task of assessment and planning becomes challenging.

However, Fritz Institute (2005) suggested creating a professional logistics community so as to enable humanitarian logisticians to share knowledge and experience on common issues and to create a consistent, powerful voice with all the stakeholders in the sector. Similarly, investing in standardized training and certification will help build a pool of logistics professionals that share common processes and vocabulary, promoting professionalism and collaboration (Fritz Institute, 2005). These literatures seem to attest the importance building logisticians professional knowledge and skill in order to enhance the performance of humanitarian logistics. In spite of this fact, humanitarian aid organizations seem to pay less attention to capability building of logisticians.

Results also indicate that 10.9 % variance in performance of humanitarian logistics is due to institutional learning so that for every one unit increase in institutional learning practices, performance of humanitarian logistics increases by .399 and vice versa, ceteris paribus, and the result is statistically significant ($t$=2.959, $p$= .004). Similar to this finding, the performance of humanitarian logistics will increase by 0.112 units for a unit increase in institutional learning, holding other factors constant (Demeke, 2016). Given this reality regarding the contribution of institutional learning in the performance of humanitarian logistics, lack of institutional learning among humanitarian aid organizations was evidenced as a critical challenge (Fritz Institute, 2005). Surprisingly,

most key informants reported only monthly evaluation, quarterly evaluation and exchanging reports as institutional learning strategies while one interviewee some time experience sharing with other organizations as a strategy. This implies that humanitarian aid organizations seem to undervalue the effect of institutional learning practices in humanitarian logistics performance given the fact that it highly affects logistics performance.

On the other hand, some of the internal or organizational explanatory variables that were included at preliminary model are excluded from final model because they did not satisfy probability of $F$-to-enter (p<= .05). As a result, recognition of logistics ($t$=.529, $p$=.574), adequate use of technology ($t$=-.837, $p$ =.393), and collaboration ($t$= -.270, $p$ =.411) were excluded from final model because they did not pass entry criteria of $F$ test. In contrast to these findings, Demeke (2016) found that performance of humanitarian logistics increases by 0.188 due to a unit increase in environmental situational factors, increases by 0.140 due to a unit increase in infrastructural situational factors, and increase by 0.123 due to a unit increase in socioeconomic factors, keeping other factors constant.

However, instead of removing non significant predictor variables, Demeke (2016) reported these variables as significant predictors of humanitarian logistics performance. To exemplify, recognition of logistics ($t$=-.282, $p$=.779), and adequate use of technology ($t$=1.457, $p$=.152) were non significant predictors though Demeke (2016) wrongly reported as significant predicting variables of the performance of humanitarian logistics. Nevertheless, literatures have documented lack of recognition to logistics, lack of collaboration, and lack of adequate use of technology as internal factors that impacted the humanitarian logistics performance (Fritz Institute, 2005, Thomas & Kopczak, 2005, Van Wassenhove, 2006). As result of the above mentioned conflicting results, perhaps it would be misleading to conclude that lack of recognition to logistics, lack of collaboration, and lack of adequate use of technology do not have effect on humanitarian logistics performance.

To validate quantitative results, the question "Do you think humanitarian logistics is recognized in your organization?" was forwarded to five key informants. To this "Yes" or "No" question, surprisingly all key informants said "Yes". This implies that there humanitarian logistics is well acknowledged. Therefore, lack of recognition to logistics is not as such significant problem. As key informants reported, existence of timely support, availability of training opportunities, existence of monitoring and evaluation system, existence of logistics guideline, efforts made to fulfill professional staff, organizing logistics office at department level and allocation of budget by the government are exemplars of recognition to logistics.

In the same vein, to check the status of IT utilization the leading questions "What is the status of your organization in using IT? To what extent absence of IT affect your humanitarian logistics performance?" were raised. In this regard, all key informants reported low level of IT utilization in their organization and its high impact on organizations logistics performance. This result is contrary to quantitative result that revealed non-significant impact of IT on logistics performance. Based on these contradicting findings, it may be possible to infer that employees may not have common understanding upon the role of IT on the performance of humanitarian logistics.

## 5. Conclusion

The results of this study provide some fascinating insights into the critical success factors that significantly determine the performance of logistics in humanitarian aid organizations. Based on the above-mentioned findings of the study, it is concluded that the availability of professional staff and adequate institutional learning are the significant predictive internal (organizational) factors that cause 27.6 percent positive change in humanitarian logistics performance. In the same vein, key informants have reported lack of collaborative work, absence of sufficient training, and inadequate use of technology were organizational factors that affect the performance of humanitarian logistics. However, the contribution and predictive effect of the recognition of logistics, adequate use of technology and institutional collaboration on the performance of humanitarian logistics is minimal. This does not mean that these variables totally have no any effect on performance of humanitarian logistics but rather these variables impact on the performance of humanitarian logistics is small in this particular study area. Notably, these variables have slight relationship with performance of humanitarian logistics though they are nor significant predictors. To this end, the humanitarian aid organizations need to identify the critical internal success factors of logistics performance so as to establish effective and efficient humanitarian logistics system.

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