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Barriers to Information Sharing among Humanitarian NGOs; A Case of Jordan

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Abstract— **Information exchange is best experienced by the stakeholders if appropriate strategy is used, which would help in enhancing the running of processes resulting in streamlined worldwide supply chain operation. The study aims to identify the barriers in information sharing among humanitarian NGOs, providing educational services for Syrian refugees in Jordan. The study has used qualitative exploratory case study through semi-structured interviews. The interviews were conducted by the project manager, coordination officer, and supply manager from humanitarian NGOs providing educational services for Syrian refugees in their offices in Amman. The results were analysed based on the interviews, conducted among employees. Different barriers were evaluated through the interviews including information availability, internet issues, confidentiality and privacy, the commitment of partners and management, security issues, language barrier, quality of information, corruption, and culture and tradition. The effectiveness of information systems in supply chain management leads to incentive misalignment, under-optimal decisions, and difficulties of refugee's demand uncertainty. The information technology facilitates efficient supply chain because of associated advantages, including knowledge and best practices to ensure effective performance.**

Keywords— *Barriers, Information sharing, Privacy, Supply Chain Management, Stakeholders*

1. Introduction

Supply chain management consists of effective products delivery at an appropriate organization. Prominently, organizations have been re-inventing several ways of making this exercise perfect for enhancing communication. The ways may include quick feedback efficient consumer response, collaborative strategizing predicting, and continued replenished programs [1]. Quick feedback is an initiative that aims at reducing time and fashion purchases. The performance of operations in a

supply chain relies heavily on how the stakeholders communicate and coordinate, when decisions are made within an organization. Since the supply chains consist of independent firms, the incentives of sharing information are a crucial part of their structure [2]. Larger firms have a tendency of hiding information to gain strategic advantage over other firms. However, less informed firms tend to screen information from well-informed firms. The backbone of all strategies in supply chain management is the sharing of information with business partners. The organizations with low levels of information sharing and information quality and with high levels of information sharing and information quality are discriminated on the basis of supplier uncertainty, shared vision between supply chain partners and commitment of supply chain partners [3].

Exchange of information can be best experienced by all stakeholders, if appropriate technology is put in place. Importantly, it would enhance the running of processes in a secure manner, resulting in a streamlined worldwide supply chain operation. The basic components of supply chain are forecast analysis and predictive profitability. The firms, that share information, tend to perform better and mitigate their risks as compared to their counterparts, who hold such information. Therefore, the study has effectively contributed to evaluate the barriers that hinder the information sharing in supply chain management. The study aimed to focus on the significance and barriers of information sharing in supply chain management using a case study of humanitarian NGOs providing educational services for Syrian refuges in Jordan. From the interviews, the value of shared information was extracted for information pertaining the supply chain members of sharing of information.

2. Literature Review

Decisions and policy implications are made at any level that affect entire supply chain, which makes

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sharing of information exceedingly important. In addition, there is a probability of certain firms to use the shared information only to have a competitive advantage, which causes information holding and disincentives to information sharing. Therefore, strategies should be put in place by firms to prevent and monitor such mean and opportunistic behaviours.

The issue of incentive misalignment is compelled by the fact that firms in supply chain failed to align their policies with the overall profit of the supply chain. Additionally, actions by a single member of the supply chain lead to uncompensated costs to the entire chain. The miscommunication leads to negative externalities and spill over effects to the entire supply chain Uncertainties within the firms arise due to order fluctuations, delivery delays, and machine breakdown. [4]. Effective communication is hindered by incentive. All the members in a supply chain must share all the sensitive information that is needed to come up with mutual goals and objectives. In the context of the refugee crisis, supply chain management has been specifically considered as the actions of planning, applying and regulating the effective flow, storage and associated information in humanitarian organizations. Supply chain management in humanitarian organizations is considered significant as it develops information network from the flow of services to endow physical grant to legatees [5]. The association among the performance of supply chain management and humanitarian organization actors are associated to increase effectiveness throughout the refugee crisis. The significance of supply chain management in refugee crisis is notified through the activities of the humanitarian organization in the form of reducing grievance and sustaining human dignity [6].

Market uncertainties are caused by three factors, which include suppliers, manufacturers, and customers. The situation has been made worse by the differences in information about the market [7]. A study by [8] reported that unpredictability of requirements is included in the dominating features of humanitarian supply chain management such as timing, location, size and difficult cooperation. In the context of supply chain management in a humanitarian organization, uncertainty is revealed from the two aspects of fuzziness and randomness [8].

Information sharing is considered as a significant factor throughout humanitarian organizations due to its dimensions, which endow management for developing goals in accordance with best practices. Information sharing can be organized in a better way by information management to share and collaborate with national and international humanitarian organizations [9] [10]. Information sharing can be done with the objective of having the greater understanding of the end consumer behaviour and effectively responding to the changes in the market place from a supply chain perspective. Therefore, manufacturers make the products only when they are needed and retailers store and sell them to end customers by cutting down their own inventory levels and associated costs. In the long term, timely exchange of information will not only improve supply chain responsiveness but will also enhance cash flow and profitability to every link in the supply chain and ultimately contribute to consumer satisfaction [7].

3.   Methodology
3.1   Research Design

The qualitative research design has been conducted to evaluate the barriers to supply chain management. The semi-structured interviews were conducted, which assisted to identify that initial abstract codes together with categories for each theme from the interview questions were followed by thematic analysis of the data.

3.2   Data Collection and Participants

The semi-structured interviews were conducted to understand the barriers to sharing information in the supply chain as humanitarian NGOs providing educational services for Syrian refuges in Jordan. The qualitative exploratory study design is used and project manager, coordination officer, and supply manager were recruited as the study participants from their offices in Amman.

3.3   Research Procedure

The methodology is focused whether information asymmetry in supply chain management leads to incentive misalignment under-optimal decisions and difficulties of demand uncertainty. Interviews commenced with an introduction, the objective of the study and its relevance were discussed with the participants. All the emerging issues were clarified prior to the interview session, and appreciation was

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given to the respondents upon completion. Apparently, a friendly environment was created with the respondent during the interview since there was ample time for sharing their experience and the expectations. The respondents were guided appropriately by the interviewer to acknowledge the questions and essence of research.

3.4   Ethical Consideration

The participants of the study were clarified about the confidentiality of the interviews. All the participants were informed that the information gathered from them will be kept confidential.

4   Results and Discussion

The information sharing barriers of supply chain management has been investigated at the level of integration in the humanitarian NGOs in Jordan, which provide the educational services for Syrian refugees. Overall, thematic data analysis generated seven themes, which were considered adequate for answering the research aim and objectives. These were: information availability, internet issues, confidentiality and privacy, the commitment of partners and management, security issues, language barrier, Quality of information, corruption, and culture and tradition.

In most cases, there are evident barriers to an effective sharing of information with a chain of panic and fear, which usually provide information and can be disadvantageous for the firm. Many supply chain firms fear that their competitors will use the shared information for their own interest [10]. Supply chain firms have a task to ensure that sharing of information will not jeopardize their objectives and that they will not be played by their competitors [2]. This will definitely reduce the fear of information sharing and improve efficiency. It may further create new opportunities for all stakeholders. In terms of operational performance, it has been indicated that transition phase is involved from the modification of speed to cost minimization. The management of organizations can be inherently affected by the long-term impact of disasters. Technological support is provided by the companies to the logistics managers to share information throughout the organization [6].

Importantly, thematic data analysis increased the complexity of the data, alleviation of contrived surface-level analysis as well as addressed the potential danger of relying on pre-existing assumptions based on the data. All the respondent quotes are verbatim, and their English and grammar were not corrected with a view to preserve the original semantics stated by the subjects.

4.1   Information Availability

This study found that the organizations that belonged to the humanitarian network of education sector shared information unlike those outside the network. The thematic code for conducting the interview was 'Receiving Information' and the group members of education sector were asked about this question.

Respondent: "*...if you are not part of this group you don't receive that information, for example, I am working for ... So, it is very useful for you to be part of this education sector.*"

It has been observed that being a part of this education sector is very effectual. It has been reported that education sector must conduct regular meetings so that everyone shares information more easily.

4.2   Internet Issues

The benefits of the internet and IT system in information sharing cannot be overstated. However, this study showed that information sharing process is handicapped by internet difficulties. This has been confirmed by the respondent below:

Respondent: "*…We have a very basic issue now because there is no internet connection inside the camps for at least the last 3-4 months. And when you have internet, you should have basic communication over the email. Inside the camp, there is a base camp. That is where all the organizations are working, it is linked to the area and there is internet in that area, but for example, if I would like to communicate with our team which is located in our center in some district there, then they don't have access to the internet over there.*"

4.3   Confidentiality and Privacy

This study showed that confidentiality of information significantly affected information sharing. The situation is even compounded by lack of trust among the network members. This is confirmed by the following responses:

Respondent: "*…being jealous and protective of information that you have…sometimes you are*

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hesitant to share the information which you have because maybe your partner turns into your competitor you know…"

Fear of competition and lack of trust among partners have been found as the major barriers to information sharing by observing the response of the respondents on the theme of confidentiality and privacy.

4.4 Commitment to Partners and Management

This study revealed that lack of policies and guidelines limit information sharing among partners. This has been confirmed by the respondent as given below:

Respondent: "*…you don't have these regulations, that say you restricting some information sharing and that belongs to you… there are no written policies, but it is left to us… It's up to us to judge what is dangerous and what competition is or what not.*"

Lack of policies and guidelines on information sharing have been observed from the above response of the respondent concerning the commitment among the partners. It has been observed that if the policies and guidelines are provided then there is a chance of effective information sharing behaviour among the partners within a team.

4.5 Security Issues

Some information is regarded as insecure when shared or published for security reasons. This was the case with the geographical operation of the respondent interviewed as confirmed below:

Respondent: "*…it should not be official, you cannot publish your… not because it's confidential but for the issues of security.*"

It has been observed that it is insecure to publish or share information, no matter it is confidential or not. Thus, the security concerns of the team must be taken into consideration for developing an information sharing environment.

4.6 Language Barrier

This study showed that language barrier is one of the barriers that hinder information sharing among humanitarian agencies largely due to lack of standardized terminologies. This was confirmed by the following response:

Respondent: "*…It's not standardized how you share information, we don't use the same language (terminology) to describe certain things databases I mentioned to you it is very difficult for us to understand the information put in…, for me the most important information comes from the ministry of education and everything is in Arabic.*"

The language barrier has also been found as one of the important causes, which is basically due to lack of standardized terminologies as per the responses of the respondents. There must be some standardized terminologies that must be understood by every member of the team working together.

4.7 Culture and Tradition

The role of culture and tradition was also found to influence information sharing. This was confirmed by the respondent as given below:

Respondent: "*…Tradition is much more important… If you are raised as a child in this culture, you are raised as a religious person, religion tells you don't question, just follow… parents tell you don't argue with me, I am your father, I am your mother and then you go to school and teachers are like, I am your teacher you don't argue with me… If I know something I have to use it for myself, to impress my boss, to be good and better and better…*"

Imam and Sheikh influence information sharing according to the responses of the respondents and it has suggested promoting a culture or tradition that is free and easy for all.

4.8 Quality of Information

This study showed that there is the poor quality of information largely due to delay in delivery. This was confirmed by the respondent as given below:

Respondent: "*…if we receive 3 different requests to fill in some form, and I go crazy like why do I need this, but somebody else might need it, even though it's not beneficial for me, I am so busy that I don't have time for this, so I can't send it to you… But because I don't see bigger picture, why this information is relevant but then I know how I get frustrated when I have some event and then I send*

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emails, can you please provide me this information and I don't get it on time, then I have to pull my personal connections that please I need this information and I have talked to your colleague to send me back email…"

4.9   Corruption

This research found that information was mainly shared on reciprocator basis as stated below:

Respondent: "*…corruption is same in my culture…, so it's same here in middle east, if you help me I will help you in future and that's how things work…. so, if you don't have the option, you will not get information.*"

Information sharing is very critical in the supply chain management. For instance, this practice facilitates process coordination with eventual improvement in long-term relationships as well as high supply chain integration level, [11], [12]. However, several studies have reported that information sharing within the supply chain management faces various barriers [13], [14]. Humanitarian organizations that were engaged in educational sectors generally shared information unlike those outside the network. The aim was to focus their resources jointly towards addressing the issues faced by the education sector. [15] reported that successful organizations share various things, including information. The assistance endowed by humanitarian organizations can be consequently abused from various barriers. Among these barriers, language and corruption are the most dominant barriers that evade strategies of humanitarian organizations to resolve issues in complex situations. It has been further examined that complex situations are mostly developed through corruption, which is abused for private gain. Furthermore, unfamiliar complexities might be executed by such barriers, which may restrict financial, administrative and physical infrastructure [16].

The current study revealed various information barriers encountered among humanitarian NGOs. For instance, the results showed that there were internet difficulties, which usually hinder information sharing and communication within or across organizations. Moreover, it has been argued that advanced systems may be associated with high capital investments as well as lack of effective cost-sharing agreements. There is positive association between firm productivity, employee retention, and increased involvement of work practices [11], [12].

4.10   Confidentiality and Privacy

Another important barrier that was identified related to confidentiality and privacy of the information shared was the fear of competition and lack of trust. For instance, it has been revealed that some organizations withhold information for fear of competition and lack of trust among partners. These results of the present study can be compared with the previous studies by [17] and [18]. [17] have suggested that information sharing is a crucial factor for any organization that aims to remain competitive and boosts profitability. Furthermore, organizational profitability depends on the flawless supply chain, and it is achievable through the provision of undistorted and current marketing information in the entire organization [2], [19], [20], [21].

4.11   Lack of commitment

Lack of commitment between partners is one of the barriers to information sharing according to the responses of the respondents of the present study. For instance, the study showed lack of policies and guidelines on information sharing. Cheng [22] attributed this information sharing barrier to power asymmetry across the supply chain partners. Consequently, this is more than likely to affect the relationships and willingness of an organization to share its information with the other supply chain partners.

4.12   Security Issues in the Humanitarian System

Regarding security issues related to information sharing, it has been found that some information may be insecure to publish or share, and thereby not released for access across the supply chain. This could be attributed to various factors, including the use of IT systems like radio frequency identification (RFID). Although this technology presents the greatest potential to facilitate information sharing and evidence has shown that this application is associated with issues of security and privacy, which limit its widespread implementation across supply-chains. For instance, the database availability generated from RFID-based data in the supply-chain is associated with critical security issues of confidentiality and integrity [23]. Moreover, there

are privacy concerns associated with the use of tagging ability of RFID in tracking movements of an individual [24], [25]. The overall implication is that information sharing is eventually affected adversely.

4.13 Poor Communication because of Language Issues

It has also identified that language barrier is one of the factors that hinder information sharing among humanitarian NGOs. In particular, the study showed that lack of standardized terminologies posed communication barrier with eventually limited information exchange. Literature has limited documentation on language barrier to information sharing. However, there is a body of evidence that poor communication poses a significant barrier to aid delivery, which can be caused largely due to language barrier and breakdown of communications infrastructure as a result of the disaster.

[26] stated that "Ironically, inter-organizational relations are usually a challenge to the relief effort instead of a source of support. Each organization has its own operating methods and goals, and it is only with great effort that they coordinate their plans and share resources". Another closely related barrier to information sharing is organizational Culture and tradition. There is much evidence of the influence of divergent interests as well as opportunistic behaviour among supply chain partners, and asymmetries of information across supply chain on information quality. The gain from collaboration specific capabilities leads to competitive advantage of a supply chain [27]. Other organizations are known to deliberately distort information likely to reach their competitors, suppliers, and customers [28].

4.14 Lack of Time

It has been revealed that a lack of timely information sharing is regarded as a barrier to supply chain management. This finding has been supported by previously reported studies that lack of information quality may be determined by accuracy and timeliness, relevancy as well as accessibility, credibility, and availability of the information. This may collectively impact the validity and reliability of the information. There is much evidence that information has no value for the receiving partner without reliability or validity [2], [11], [14], [17].

4.15 Corruption within the System

Corruption is another important factor that was identified by the current study as a barrier to sharing information. According to the current study, information is shared with those organizations that reciprocate in one way or the other as opposed to best business practices. From literature, corruption may result from various factors such as issues regarding measuring and sharing the benefits, which results with information sharing across the supply chain partners [12], [29]. According to [30], companies operate legally as separate entities with different performance metrics as well as reward systems. This suggested that the potential issue of the approach is to measure and distribute the benefits resulting from information sharing across network members fairly [19], [30]. As stated by [11], there is a possibility that only one member can reap all the benefits. This issue could be addressed through a shared supply chain metric system that ensures equitable distribution of benefits between the partners involved [30], [31].

It is inevitable for members in a supply chain to communicate and coordinate activities. In reference to the case study interview, communication was interrupted probably due to inefficiencies of the communication device [29]. In order to compete favourably with other supply chains and coordinate operations easily with all members, appropriate technology is needed to be employed in the supply chain.

Additionally, every stakeholder in the supply chain must analyse and interpret all the information shared and come up with accurate data about the status of other members in the supply chain. Through the use of technology, such analysis could be done with a click of a button. Therefore, every manager in the chain must analyse the flow of information, share with the relevant stakeholders and coordinate with other members of the chain. Eliminating the barriers that hinder sharing of information in a supply chain brings about more profitability, ease of operations in the supply chain and minimization of risks and losses conversation [10].

4.16 Effective Team planning with the use of Technology

Team planning of the supply chain operations ensure integration of functions and promotes

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information sharing. Additionally, the challenges facing supply chain organizations in ensuring effective and efficient communication revolve around technological backwardness and organizational structure. Technological backwardness results with inventory shortages, communication breakdowns and wastage of resources. Coordination of staff in supply chain management prevents wastage of human resources and enables information sharing along with the supply chains. Moreover, Yu et al. [10], stated that every stakeholder in a supply chain needs to have all the necessary information to perform effectively.

Information technology aspect has two dimensions, which could be taken as opportunities to improve the sharing of information in a supply chain namely e-supply and e-commerce. E-supply and e-commerce aid in information accessibility and promotes accurate coordination and programs decision making. Additionally, technologies can eliminate hierarchies and improve the services given to the customers. Moreover, accurate sharing of information with the use of information technology can lead to effective decision-making processes, better internal coordination and proper implementation of processes, which guarantee long-run profitability. As connectivity creates the ability for the supply chains to share information, people involved a great role in deciding what to be shared and to whom [10]. Additionally, technology, among others like willingness, trust, and good leadership is just a tool to promote information sharing and proper coordination of activities in the supply chain.

Information sharing is significantly important to ensure that members of supply chain enjoy substantial benefits at various levels. The benefits of information sharing include better coordination across supply chain partners and reduced costs for the improved responses and performance across the supply chains. In the case of humanitarian sector, information sharing allows network members to share students' registration numbers, student's attendance, their score, results, exam results, and demographics of learners. The major benefit in humanitarian sector is sharing knowledge and best practices to ensure effective performance. However, the process faces various barriers, including technological difficulties, lack of trust and confidence, financial constraints, information quality, among supply chain partners.

5   Conclusion

The present study has mainly focused on the evaluation of barriers that hinder the information sharing in supply chain management. The results conclude that profit maximization and cost reduction are key goals in firms, communication, and information sharing is the back bone of business and humanitarian organizations to better response and people save lives. The main focus of firms is to perform better and mitigate their risks as compared to their counterparts. Managers should recognize technological advancements in the supply chain organizations. It is because technological advancement would solve the barriers, hindering information sharing at all stages and make production more efficient. People are the key elements in supply chain management; therefore, the loss of contact with people involved would cost the chain a great deal. Humanitarian NGOs should utilize policies and practice to make sure the appropriateness of programming decisions, actions, and funding. Humanitarian organizations should merge with NGOs to endow better and effective supply chain functions. Humanitarian organizations should develop and execute superior logistics, distribution methods, and transportation to deliver commodities and services to beneficiaries. Humanitarian organizations and NGOs should get education and training to enhance the pre-disaster groundwork and post-disaster retort. Humanitarian NGOs must strengthen bonds with local partners by adhering information sharing systems. Donor support must be augmented for the implementation of the supply chain management practices in refugee camps. Logistics expertise must be abundant enough to enhance the capacity of organizations and execute defined procedures.

5.1   Recommendations

The study recommended employing the comparative study design with the larger number of subjects to ascertain these findings in future studies. Furthermore, the study also recommended that the study has also assisted the policy makers and management in making decisions regarding supply chain business.

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References

[1] Fawcett SE, Magnan GM, McCarter MW, "*Supply chain alliances and social dilemmas: Bridging the barriers that impede collaboration*", International Journal of Procurement Management, Vol 1, No. 3, pp. 318-341, 2008. Doi: l0.1504/ijpm.2008.017528

[2] Li S, Ragu-Nathan B, Ragu-Nathan TS, Rao SS, "*The impact of supply chain management practices on competitive advantage and organizational performance*", Omega, Vol 34, No. 2, pp. 107-24, 2006. Doi: 10.1016/j.omega.2004.08.002

[3] Li S, Lin B, "*Accessing information sharing and information quality in supply chain management*", Decision support systems, Vol 42, No. 3, pp. 1641-1656, 2006. Doi: 10.1016/j.dss.2006.02.011

[4] Hickox E, "*Negative Externalities and Environmental Regulation: An Application of the Principal-Agent Model*", 2014.

[5] Sahay BS, Menon NVC, Gupta S, "*Humanitarian Logistics and Disaster Management: The Role of Different Stakeholders.*" In Managing Humanitarian Logistics, Springer, India, pp. 3-21, 2016.

[6] Gizaw BT, Gumus AT, "*Humanitarian Relief Supply Chain Performance Evaluation: A Literature Review*", International Journal of Marketing Studies, Vol 8, No. 2, p. 105. Doi: 10.5539/ijms.v8n2p105

[7] Gavirneni S, "*Information flows in capacitated supply chains with fixed ordering costs*", Management science, Vol 48 No. 5, pp. 644-651, 2002. Doi: 10.1287/mnsc.48.5.644.7806

[8] Tofighi S, Torabi SA, Mansouri SA, "*Humanitarian logistics network design under mixed uncertainty*", European Journal of Operational Research, Vol. 250, No. 1, pp. 239-250, 2016. Doi: 10.1016/j.ejor.2015.08.059

[9] Zobel CW, Altay N, Haselkorn MP, "*Humanitarian Research and Managing Humanitarian Operations*", In Advances in Managing Humanitarian Operations, Springer International Publishing. pp. 1-7, 2016. Doi: 10.1007/978-3-319-24418-1_1

[10] Yu Merry SE, Conley JM. "*Measuring the world: Indicators, human rights, and global governance*", Current Anthropology, Vol. 52 No. S3, 2011. Doi: 10.1086/657241

[11] Bromiley P, McShane M, Nair A, Rustambekov E. "Enterprise risk management: Review, critique, and research directions", Long range planning, Vol. 48, No. 4, pp. 265-276, 2015. Doi: 10.1016/j.lrp.2014.07.005

[12] Huang LC, Ahlstrom D, Lee AYP, Chen SY, Hsieh MJ, "*High performance work systems, employee well-being, and job involvement: An empirical study*", Personnel Review, Vol. 45, No. 2, pp. 296-314, 2016. Doi: 10.1108/pr-09-2014-0201

[13] Hernández-Espallardo M, Rodríguez-Orejuela A, Sánchez-Pérez M, "*Inter-organizational governance, learning and performance in supply chains*", Supply Chain Management: An International Journal, Vol. 15, No. 2, pp. 101-114, 2010. Doi: 10.1108/13598541011028714

[14] Capó-Vicedo J, Mula J, Capó J, "*A social network-based organizational model for improving* knowledge *management in supply chains*", Supply Chain Management: An International Journal, Vol. 16 No. 4, 284-293, 2011. Doi: 10.1108/13598541111139099

[15] Lane K, Pollner F, "*How to address China's growing talent shortage*", The McKinsey Quarterly, Vol. 3, No. 2008, 33-40, 2008.

[16] May O, "*Fighting Fraud and Corruption in the Humanitarian* and *Global Development Sector*", Routledge, 2016.

[17] Moberg CR, Cutler BD, Gross A, Speh TW, "*Identifying antecedents of information exchange within supply chains*", International Journal of Physical Distribution & Logistics Management, Vol. 32, No. 9, pp. 755-70, 2002. Doi: 10.1108/09600030210452431

[18] Klein R, Rai A, "*Interfirm strategic information flows in logistics supply chain relationships*", Mis Quarterly, pp. 735-62, 2009. Doi: 10.2307/20650325

[19] Aitken J, Childerhouse P, Deakins E, Towill D, "A comparative study of manufacturing and service sector supply chain integration via the uncertainty circle model", The International Journal of Logistics Management, Vol. 27, No. 1, pp. 188-205, 2016. Doi: 10.1108/ijlm-03-2014-0047

[20] Rahman Z, "Use of internet in supply chain management: A study of Indian companies." Industrial Management & Data Systems, Vol. 104, No. 1, pp. 31-41, 2004. Doi: 10.1108/02635570410514070

[21] Dikshit PSK, Trivedi DS, "Impact of supply chain management practices on competitive edge and organisational performance: study of cement industry", Paradigm, Vol. 16 No. 2, pp.

67-81, 2012. Doi: 10.1177/0971890720120207

[22] Cheng JH, "Inter-organizational relationships and information sharing in supply chains", International Journal of Information Management, Vol. 32, No. 4, pp. 374-384, 2011. Doi: 10.1016/j.ijinfomgt.2010.09.004

[23] Thiesse F, Condea C, "RFID data sharing in supply chains: What is the value of the EPC network?", International Journal of Electronic Business, Vol. 7, No. 1, pp. 21-43, 2009. Doi: 10.1504/ijeb.2009.023607

[24] Barut M, Brown R, Freund N, May J, Reinhart E, "RFID and corporate responsibility: hidden costs in RFID implementation", Business and Society Review, Vol. 111, No. 3, 287-303, 2006. Doi: 10.1111/j.1467-8594.2006.00273.x

[25] Weinstein R, "RFID: A technical overview and its application to the enterprise", IT professional, Vol. 7, pp. 27-33, 2005. Doi: 10.1109/mitp.2005.69

[26] Long D. C., and Wood, D. F. 1995. "The logistics of famine relief." Journal of Business Logistics 16: 213.

[27] Wang ET, Wei HL, "Interorganizational governance value creation: coordinating for information visibility and flexibility in supply chains", Decision Sciences, Vol. 38, No. 4, pp. 647-674, 2007. Doi: 10.1111/j.1540-5915.2007.00173.x

[28] Ballou RH, Gilbert SM, Mukherjee A, "New managerial challenges from supply chain opportunities", Industrial Marketing Management, Vol. 29, No. 1, pp. 7-18, 2000. Doi: 10.1016/s0019-8501(99)00107-8

[29] Barratt M, "Understanding the meaning of collaboration in the supply chain", Supply Chain Management: An International Journal, Vol. 9, No. 1, pp. 30-42, 2004. Doi: 10.1108/13598540410517566