International Journal of Recent Technology and Engineering (IJRTE)
ISSN: 2277-3878 (Online), Volume-8 Issue-4, November 2019

Impact of Knowledge Sharing on the Relationship between Technological Factors and Supply Chain Performance

Farah Zawaideh

Abstract*: This study is an attempt to resolve the issue the mediating role of knowledge sharing on supply chain performance (SCP), by considering different technological factors, in the context of SMEs in Jordan. The study specifically examined the relationship between technological factors and SCP, with the mediating role of knowledge sharing among the SMEs. The study adopted a self-administered questionnaire as a data collection technique, with which data were gathered from 371 supply chain members of various SMEs in the Jordanian industries. Data was then exposed to analysis using AMOS and SEM. The obtained findings showed support for the formulated hypothesis, in that the findings indicated the mediating role of knowledge sharing on the technological factors-SCP relationship at the significance level of 1%. The findings also showed that IT infrastructure and social media usage (technological factors) had no direct significant relationship with SCP but the technological factors had a significant positive relationship with knowledge sharing at the significance level of 1%.

Keywords* : knowledge sharing, technological factors, supply chain performance.

I. INTRODUCTION

The significance of knowledge management lies in its support of gaining competitive advantage and effective working among organizations via knowledge sharing and re-use [1]. In this regards, the advent of the knowledge economy era, there has been a notable increase in the importance and acknowledgement of knowledge, so much so, knowledge has become the core of economic growth, project growth and societal growth.

In other words, the actual source of the major decisive production factor is knowledge as opposed to capital in the soil or work [2]. In fact, knowledge is what creates value for projects, with the knowledge department creating and developing ways on how to realize competitive advantage. According to [3], intangible resources are the resources that generate competitive advantage and they encompass various factors, patents and reputation to the supply chain, user's experience and culture of the organization.

Manuscript published on November 30, 2019.
* Correspondence Author
Farah Zawaideh* , Department of Management Information System, Irbid National University, Irbid, Jordan. Email: fomh2009@gmail.com

With the movement of commercial activities becoming more directed towards the global environment, management has to face the challenging task of developing relationships with users, customers, partners and suppliers [4, 5]. In this regard, a good knowledge management strategy can assist in

achieving the task according to the importance given to it by the supply chain members.

More specifically, supply chain management (SCM) refers to a management style in the global market of manufacturing [6]. Complex SCM in the competitive global economy can be used as a major strategic technique that can directly affect project success and enable supply chain management to make content changes for the betterment. The traditional supply chain cost and factors is generally linked with material flow, information flow and financial resources flow but the market is in need of a quick response in the current supply chain management, with the emphasis placed on information, knowledge and intelligent sources sharing. Stated clearly, knowledge integrated into the supply chain management would contribute to the achievement of competitiveness and flexibility and clarity in terms of information and data sharing. Hence, for successful supply chain management, knowledge sharing has to be one of the major processes focused on.

Knowledge sources can be categorized into two namely, internal and external sources of knowledge of the organization. The former stems from secondary associations and knowledge concerning delayed manufacturing and the like, while the latter stems from end-users expectations, and the components that lead and determine user's attitudes [7]. Therefore, for the members of the supply chain, knowledge sharing is significant and should be commonly acknowledged [8].

According to [9], knowledge throughout the supply chain leads to the required innovation capabilities that the present businesses require. When it comes to knowledge management, information technology (IT) plays its part as a determinant of KMS implementation success/failure as illustrated by [10]. IT refers to using computer software and communication technology to facilitate the acquisition, storage, dissemination and application of knowledge processes [11]. Based on the studies dedicated to the influencing determinants of knowledge sharing in the supply chain, the topic is still in the initial stage [12, 13].

This study contributes by conducting an analysis of the supply chain and the factors determining knowledge sharing in the context of Jordanian industrial firms. This study views knowledge management as complex in throughout the supply chain as the firms differ in several aspects (e.g., culture, objectives, histories, resources, systems, etc.).

A firm's entrance and exit from the supply chain should be flexible as it can be a member of several chains simultaneously, and with different requests arising from each, coordination may pose as a challenge [14].

In the present era, the knowledge-based economy development has led to the increasing permeation of knowledge as a significant resource to business for their competitive advantage and development in the long-run. Supply chain members possess heterogeneous and complementary resources, making knowledge sharing an effective method to enhance their overall operational efficiency and to obtain and sustain competitive advantage. In relation to the above, several influencing factors have been related to knowledge sharing throughout the supply chain [12].

[15] highlighted the confined applications used to integrate knowledge management as a competitive advantage source even through the identification of pros and cons arising from it are significant. Organizations tend to lack awareness of the actual issues when it comes to knowledge management but based on [16] study, the initial step towards knowledge management realization is to determine the issues and challenges that prevent knowledge transfer within organizations. Organizations have to understand the problems prior to implementing strategies to promote efficacy and efficiency via optimum management of knowledge [17]. Moreover, lack of sharing of knowledge among the supply chain members has been evidenced to significantly influence the whole performance of organizations [7] and thus, KM generally enhances the success level of SCM efforts and the possibility of new SCM undertakings success. In this line of argument, some SCM projects have succeeded in enhancing the firm's performance.

With regards to the factors influencing successful knowledge sharing among various professional circles, [18] revealed that they may be attributed to environmental factors, while [19, 20] attributed them to organizational factors. Some other studies attributed knowledge sharing success to IT and social media (e.g., [21, 22]). Research findings are mixed concerning this topic depending on the organizational nature and industry within which the knowledge sharing takes place.

Despite the determination of several factors that impact knowledge sharing in literature, further studies are required to identify such factors effects on the performance of organizations, especially throughout the supply chain management in industrial firms, particularly in Jordan [23]. This is because extant knowledge sharing studies like that conducted by [24] laid more emphasis on behavioral factors, using behavioral theories, and largely ignoring IT-related factors. It is notable that little attention has been laid on SCM, with the ultimate aim is profitability and survival through knowledge sharing. Thus, the present study minimizes the gap in literature dedicated to knowledge sharing by conducting a thorough literature review, developing a conceptual framework, mapping out guidelines for the study's examination of technological factors (IT infrastructure availability and social media use) and examining their effects on knowledge sharing and SC performance in the Jordanian industrial firms. The remaining sections of the paper are organized in the following way; the present section is followed by a thorough literature review and the development of the conceptual study, followed by the research hypotheses development. The sections then presence the adopted methodological processes and procedures for the study execution along with the findings and discussion concerning the findings. Finally, the paper provides conclusions and recommendations for future studies.

II. LITERATURE REVIEW

A. Technological Factors

In today's information age, technological factors are a must for knowledge sharing, as knowledge has to be shared via channels and methods. The main technological factors examined in this paper are IT infrastructure and social media use.

- IT Infrastructure: IT has a key role in acquiring, storing, processing, retrieving and transferring knowledge and in turn, enabling individuals in any part of the world to sharing their knowledge, whether individually or in groups [25]. According to [26], ICT has a key role in three major knowledge management activities, which are knowledge acquisition, knowledge-related digital items defining, storing, categorizing, indexing and connecting and last, content seeking and identifying. In relation to this, [27] empirical study showed that the top risk linked to knowledge sharing in-house is the insufficient technical infrastructure and information system. IT infrastructure availability enables sharing of knowledge internally and throughout extensive geographical locations. In other words, technical infrastructure and IT enables employees to share, acquire feedback and create innovative ideas.
- Social Media Use: Among academic circles, sharing knowledge in the traditional way involves face-to-face sharing, training, seminar and workshop, reading manual and instructions, among others. But owing to the technological developments, several effective means have been proposed, with one of the major ones being social media [28]. Social media has reached its significance pinnacle when it comes to sharing knowledge and information through Facebook, LinkedIn, YouTube or Twitter that has permeated the whole globe. Social media has taken a step further and changed personal relationships, paving the way for a number of issues to be resolved and avenues of possibilities for collaboration [29]. Consequently, organizations have been determining ways to integrate social media into their business operations. In addition, social media assists shy or busy individuals to share information and knowledge, making sure that physical contact is made to a minimum.

B. Knowledge Sharing (KS)

Knowledge refers to the understandings, generalizations and abstractions used by people to managing and interpreting their day to day lives in this world. It was also described as the organized and analyzed information, making it comprehensible and applicable for problem-solving or decision-making processes [30].

Knowledge sharing is a knowledge management process [31] and is referred to as the knowledge transfer process form the individual to the organization [32, 33].

Moreover, KS enables individuals to share and exchange their knowledge (tacit or explicit), in order to create novel knowledge from it [33]. In this regard, the primary objective of knowledge sharing within organizations is knowledge sharing and enrichment through the development of a culture of sharing from the lower employee levels until the top echelons of management [34]. Suffice it to say that organization will not benefit from knowledge unless and until it is shared throughout the members and departments [35]. It is however not easy to urge people share what they know and based on [12], studies focused on the determinants of knowledge sharing throughout the supply chain are still few and far between.

C. Supply Chain Performance

Reference [36] described the supply chain as encapsulating the entire activities relating to the goods/information flow beginning from raw materials sourcing to the delivery to the end user. In the manufacturing context, manufacturers are generally critical in determining the SC goals as a result of which, they delineate the performance of supply chain. Supply chain performance (SCM) has adopted a leading strategic position in industries (manufacturing and service), with companies being conscientious in SCM practices implementation throughout the past years [37]. Despite the attention focused on SCM by researches, the reason behind why some supply chains outperform others is still an issue to be solved and determined in terms of the intangibles related with the performance of SC [38].

III. THEORETICAL FRAMEWORK

A. Adaptive Structuration Theory

The Adaptive Structuration Theory originated from the structuration theory proposed by Anthony Gidden. With the permeation of IT into organizations as one of their components, structuration theory has been extensively used in research dedicated to IS [39-41]. The theory illustrates the relationship between the structural potentials of advanced IT and the internal structures of users, promoting the technologies appropriation [42]. However, appropriations are not automatic as pre-determined by their designers, but they depend on the users-technologies interaction. According to the theory of technologies appropriations, technologies that successfully support and facilitate interconnected group processes stem have been found to be used properly and efficiently as opposed to only focusing on their infrastructures or merely making use of them [43]. Therefore, in the current times, in the face of IT revolution and developments, majority of companies have turned to the application of KMS architecture for the management of learning and business know-how, with policies established to assist knowledge workers' creation, organization, and availability of knowledge when and wherever required [44].

B. Social Exchange Theory

One of the most expansively mentioned and employed model of interpersonal interaction in social psychology is the Social Exchange Theory (SET). The theory addresses inter-personal interactions that entail communication, behavior, affection and products [45, 46] but without the blatant bartering of economic exchange [45]. SET considers the interactions from the perspective of cost-benefit, much like to an economic exchange, with the difference being that a social exchange addresses the exchange of intangible social costs and benefits like respect, caring, friendship and honor, and is devoid of explicit rules/agreements.

Similar to an economic exchange, social exchange posits that individuals conduct exchange interactions when they expect to receive a reward from it that counters the cost of taking part in the exchange. In particular, the main difference between a social and economic exchange is that the former does not provide guarantee of reciprocal rewards for the invested costs as no rules or agreement govern it. A social exchange guarantee only stems from the other party's cooperative intentions, with the belief held that the other party will fulfill their expectations [46].

On the whole, the process of knowledge sharing forms a human activity type [47], particularly suitable to be examined through social exchange theory, with the theory used to examine the supply chain sharing behavior. This holds true for several reasons; knowledge sharing is made up of a series of exchanges and supply chain members are always on a look out for ways to maximize rewards and mitigate costs, and knowledge sharing success throughout the supply chain largely depends on the members in the chain for the reciprocation of knowledge sharing.

IV. CONCEPTUAL MODEL

According to the factors identified from literature and tweaked to make them suitable for the study, a conceptual model is developed (refer to Figure 1). The model's variables are technological factors namely, IT infrastructure and social media use, along with knowledge sharing and supply chain performance.

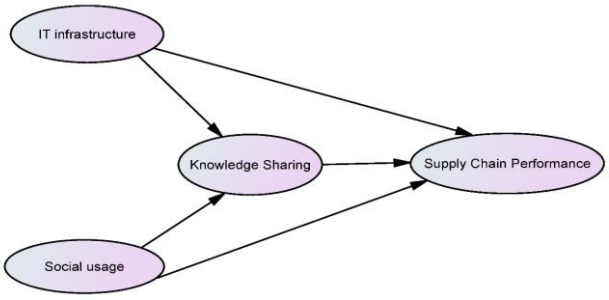

Fig. 1. **Conceptual Framework**

The hypothesized variables in the above model are individually explained in the next subsections.

A. Technological Factors and Knowledge Sharing

According to [48], ICT infrastructure and structure is a significant determinant of knowledge sharing in organizations, while similarly, [49] evidenced a positive technological factors-knowledge sharing relationship. Along the same line of study, [50] revealed the significant influence of technological factors on knowledge sharing. Also, in their examination of IT infrastructure factors affecting knowledge management, [51] found that the former is a predictor of the latter and thus, based on literature, this study proposes the following hypotheses for testing;

- H1: There is a significant relationship between technological factors and knowledge sharing.
- H1a: There is a significant relationship between IT infrastructure and knowledge sharing.
- H1b: There is a significant relationship between social media use and knowledge sharing.

B. Knowledge Sharing and Supply Chain Performance

Knowledge sharing has been evidenced to have a positive relationship with performance in literature (e.g., [49]). In the same study [52] focused on knowledge sharing effect on SCP and evidenced the significance of the role of knowledge sharing in SC. Meanwhile, in [53] study, the authors examined the way knowledge sharing affects the performance of firms and found its significant influence on the latter. Based on the SCM-organizational performance relationship, a positive relationship exists as revealed by [23]. According to the above discussed studies in literature, this study proposes the following hypothesis for testing;

- H2: There is a significant relationship between knowledge sharing and supply chain performance.

C. Technological Factors and Supply Chain Performance

The important IT practices and techniques role in establishing a competitive advantage through SCM was evidenced in [54] study. This was supported by [55] who also revealed a significant positive IT-SCM relationship. Added to the above studies, [56] conducted an analysis of the social media use in the supply chain in its contribution to relationship building among the members of the supply chain and revealed a positive result. Thus, this study proposes the third hypothesis as follows;

- H3: There is a significant relationship between technological factors and supply chain performance.
- H3a: There is a significant relationship between IT infrastructure and supply chain performance.
- H3b: There is a significant relationship between social media use and supply chain performance.

D. Mediating Effect of Knowledge Sharing

Studies in literature (e.g., [57, 58]) emphasized the importance of knowledge sharing in organizations and efficient knowledge sharing leads to intense major practical resources use through resources sharing among organizations [59]. [60] indicated that knowledge sharing across organizational boundaries tend to lead to successful competition and in knowledge sharing, using appropriate methods, organizations are enabled to reap competitive advantage [61]. It is thus assumed in this study that knowledge sharing leads to a robust knowledge-sharing supply chain decision-making and optimum supply chain optimum performance. Hence, it is argued that knowledge sharing has a moderating role in the relationship between technological factors and supply chain performance. Therefore, the following hypothesis is proposed to be tested;

- H4: Knowledge sharing has a positive mediating effect on the relationship between technological factors and supply chain performance.

V. METHODOLOGY

A. Sample

In this study, a quantitative method was employed to investigate the effect of knowledge sharing on the technological factors-supply chain performance relationship among the Jordanian SMEs. [62] explained that a quantitative approach predicts, explains and controls a social phenomenon and [63] indicated that the main aim of the approach is to test hypotheses or resolve research questions. Moreover, the approach allows the researcher to focus on a specific issue, to apply a robust method and to produce valid and accurate conclusions [64]. Data collection is generally conducted using self-administered questionnaire distributed to respondents for their completion according to their pace [65]. The method allows researchers to clarify the study significance and develop rapport with the respondents to motivate their participation and to explain ambiguous or sensitive questions. [66] stressed on the approach's clarification of ambiguities and the anonymity of respondents.

Therefore, this quantitative study employed questionnaire survey to examine the effect of technological factors on SCP among Jordanian SMEs. The population of the study comprised of the senior managers, production managers, logistic managers and employees of supply chain departments in Jordanian SMEs. The SMEs were obtained from the list provided by the Jordan Chamber of Industry (JCI) through an official application procedure, resulting in a list of 17, 849 firms [67]. The list also detailed every SMEs in the manufacturing sector in light of their names, phone numbers and emails. The JCI is responsible of keeping track of any business in Jordan as it is the license-providing entity. A total of 400 questionnaire copies were distributed to the Jordanian SMEs and after three months, the author retrieved 371 completed questionnaires, with a rate of response of 61.8%. According to [66], a rate of response rate of 30% and over is acceptable for a survey study.

B. Data Analysis Strategy

The analysis of the obtained data was carried out with the help of Principal Component Analysis (PCA), to which every variable was exposed to. The authenticity of the variables, in terms of convergent and discriminant validity, examined using KMO.

The KMO results indicate if data is suitable to be examined for component examination and its measure of test adequacy establishes the relationship nature [68].

In the first SEM phase, a connection is built between the endogenous and exogenous variables through the single and twofold head bolts, within which the exogenous variables are depicted by circles and endogenous counterparts by squares (AMOS prerequisites). SEM is applied to gauge the parameters differences like other multivariate techniques. This may be exemplified by the fact that using connection relapse may not obtain or revise the estimation error – when a relapse occurs, examination into its position in every single free variable is ignored, and this makes the model susceptible to erroneous outcomes. SEM, on the other hand, consolidates inert and measured variables making it suitable to illustrate multivariate relationship and to assess variables effects.

C. Measures

The measurement items were adopted from literature, whose validity and reliability were already established. The technological factors constructs were measured by 8 items divided as follows; 4 items for IT-infrastructure and 4 items for social media usage adopted from [69, 70]. Knowledge sharing was measured by 4 items adopted form [30, 71, 72]. With regards to the performance of SC construct, it was measured by 4 items adopted from [38]. The items were tweaked to make them aligned with the context of the study and they were gauged along a 5-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree).

VI. DATA ANALYSIS AND RESULT

A. Reliability of Measurement

Reliability refers to the overall measure consistency and a measure is deemed to have a high reliability if it generates similar results over and over with repetitive experimentations under constant conditions. Reliability of measurement is measured using Cronbach's alpha coefficient and the estimated coefficient values are used to confirm the reliability and internal consistency of the measures. The Cronbach's alpha of the study items measuring the constructs ranged from 0.87 to 0.90 (refer to Table I), indicating high reliability.

Table- I: Reliability of Measurements

Construct	No. of items	Cronbach's Alpha
IT infrastructure (IT)	4	.908
Social media usage (SMU)	4	.883
Knowledge sharing (KS)	4	.902
Supply chain performance (SCP)	4	.878

B. Factor Analysis

The Pearson Correlation Analysis (PCA) was used to conduct the examination of convergent and discriminant validity, with the varimax rotation method specifically used. In order to confirm that the factor analysis was appropriate for data, KMO was run. In factor analysis large numbers of items are converted into smaller uncorrelated factors and the assumption is such that, a correlation exists among the dimensions of the constructs. The PCA results are tabulated in Table II, and based on the table, the KMO test of sphericity results showed affirmative data adequacy for examination of the components. According to the rule of thumb established by [73], KMO value of 0.5-0.6 is unsuitable, that of 0.7-0.8 is acceptable, and that of 0.8 and 0.9 is attractive. The KMO values for each construct of this research were deemed to be acceptable at 0.7, indicating the suitability of data to be exposed to factor analysis.

Table- II: KMO values for model constructs

Construct	KMO	Factor Loading	
IT infrastructure (IT)	.824	IT.1	.863
		IT.2	.926
		IT.3	.886
		IT.4	.868
Social media usage (SMU)	.812	SMU.1	.844
		SMU.2	.872
		SMU.3	.904
		SMU.4	.836
Knowledge sharing (KS)	.804	KS.1	.896
		KS.2	.926
		KS.3	.922
		KS.4	.809
Supply chain performance (SCP)	.782	SCP.1	.781
		SCP.2	.890
		SCP.3	.890
		SCP.4	.880

C. Model-Fit Summary

Based on the analysis, it is notable that (chi-square) produced a value of 278.029, with degree of freedom =99, and p-value of 0.000. These values support the model-data fit. Owing to the sensitivity of the chi-square statistics, it is advisable to use other fit measures. After using such measures (i.e., CMIN/df=2.808, NFI=0.815, CFI=0.871, GFI=0.785, and RMSEA=0.035), the goodness-of-fit of the model to data was confirmed.

D. Hypotheses Testing

Following the hypotheses testing, the findings clarify the understanding of the factors and the phenomenon under study. In the main model, the hypothesis of the mediating role of knowledge sharing on the relationship between technological factors and SCP is supported at P<1%, indicating that with changes in knowledge sharing, SCP is mediated in the presence of technological factors at P<1%, and with one unit change in knowledge sharing, SCP changes by 84.7%. Table III and table IV confirms the key role that knowledge sharing plays and its positive impact on SCP (IT infrastructure with beta of 0.455 and social media use with beta of 0.319) at the significance level of 1%. Hypotheses H1a and H1b were supported. Moreover, knowledge sharing was found to relate significantly to SCM at beta 0.847, indicating support for hypothesis H2. Finally, IT infrastructure and social media use had no significant relationship with SCP, indicating that hypotheses H3a and H3b were rejected.

Table- III: Hypothesis Testing Results

Relationship	Estimate	S.E.	C.R.	P
Knowledge_Sharing<--- IT_infrastructure	.455	.079	5.759	***
Knowledge_Sharing<--- Social_usage	.319	.074	4.284	***
Supply_Chain_Performance<--Knowledge_Sharing	.847	.217	3.896	***
Supply_Chain_Performance<--- IT_infrastructure	-.154	.117	-1.309	.191
Supply_Chain_Performance<--- Social_usage	.202	.108	1.880	.060

Table-IV :Hypothesis Results

Hypothesis	Comments
H1: There is a significant relationship between technological factors and knowledge sharing.	Accepted
H1a: There is a significant relationship between IT infrastructure and knowledge sharing.	P-value (***)(0.445) Estimated value of regression Hypothesis is accepted at 1% level of significance See Table 3
H1b: There is a significant relationship between usage of social media and knowledge sharing.	P-value (***)(0.319) Estimated value of regression Hypothesis is accepted at 1% level of significance See Table 3
H2: There is a significant relationship between knowledge sharing and supply chain performance.	P-value (***)(.847) Estimated value of regression Hypothesis is accepted at 1% level of significance See Table 3
H3: There is a significant relationship between technological factors and SCP.	Rejected
H3a: There is a significant relationship between IT infrastructure and SCP.	P-value (***)(-.154) Estimated value of regression Hypothesis is rejected at 1% level of significance See Table 3
H3b: There is a significant relationship between Usage of social media and SCP.	P-value (***)(.202) Estimated value of regression Hypothesis is rejected at 1% level of significance See Table 3
H4: Knowledge sharing has a positive mediating effect on the relationship between technological factors and supply chain performance.	P-value (***)(.847) Estimated value of regression Hypothesis is accepted at 1% level of significance See Table 3

VII. CONCLUSION

The study indicated evidence of the significant influence of technological factors on knowledge sharing and that knowledge sharing significantly influence SCP in the industrial SMEs in Jordan. The study is an exploratory one that maintained the study variables nature (technological factors, knowledge sharing and SCP). The study employed a self-administered survey questionnaire to gather data, which were later analyzed to reap outcomes with the help of recent techniques and strategies. The examination of the factors (i.e., IT infrastructure and social media use) laid stress on their importance in enhancing SCP. By relating them to performance of SC, the study highlighted the role of knowledge sharing for optimum performance of Jordanian industrial SMEs. In this regard, management may reap the advantages from the use of technological factors to promote awareness of knowledge sharing. Initiatives should be established concerning the factors in order to effectively and efficiently utilize firm assets (internal and external). As a consequence, one of the vital advantages of knowledge sharing as emphasized in this study is long-term enhanced performance and considerable benefits.

REFERENCES

1. R. Abdullah, M. H. Selamat, S. Sahibudin, and A. R. Alias, "A framework for knowledge management system implementation in collaborative environment for higher learning institution," Journal of Knowledge Management Practice, 2005.
2. M. Z. Almuiet and J. Salim, "From a Literature Review to a Conceptual Framework for Automation Knowledge Acquisition in Supply Chain Management," Journal of Theoretical Applied Information Technology, vol. 64, no. 3, 2014.
3. R. Hall and P. Andriani, "Management Focus Analysing Intangible Resources and Managing Knowledge in a Supply Chain Context," European Management Journal, vol. 16, pp. 685–697, 1998.
4. Thomas.Y.C. and B. Jaroslaw, "Intellectual property management: A knowledge supply chain perspective " Business Horizons, vol. 47, pp. 37-44, January 2004. 2004.
5. Z. Zhi-qing, Q. Ling, Y. Hong, and Z. Tong-ying, "Knowledge Management in Supply Chain: Complexity and a Conceptual System Framework Based on MAS," in Wireless Communications, Networking and Mobile Computing, 2007. WiCom 2007. International Conference on, 2007, pp. 5333-5336.
6. S. C. P. Meindl, Supply Chain Management--Strategy, Planning and Operation. Tsinghua University Press. wheat soybean others land for no use, 2016.
7. N. Hussain and S. Subramoniam, "ELECTRONIC SUPPLY CHAIN MANAGEMENT: SOME LATEST ISSUES AND PRACTICES," presented at the 49th National Convention of Indian Institution of Industrial Engineering, 2007.
8. M. K. Lim, M.-L. Tseng, K. H. Tan, and T. D. Bui, "Knowledge management in sustainable supply chain management: Improving performance through an interpretive structural modelling approach," Journal of Cleaner Production, vol. 162, pp. 806-816, 2017/09/20/ 2017.
9. D. Jimenez-Jimenez, "The mediating role of supply chain collaboration on the relationship between information technology and innovation," Journal of Knowledge Management, vol. 23, no. 3, pp. 548-567, 2019.

10. J.-A. Johannessen, J. Olaisen, and B. Olsen, "Mismanagement of tacit knowledge: the importance of tacit knowledge, the danger of information technology, and what to do about it," International Journal of Information Management, doi: DOI: 10.1016/S0268-4012(00)00047-5 vol. 21, no. 1, pp. 3-20, 2001.
11. A. Abecker, A. Bernardi, K. Hinkelmann, O. Kühn, and M. Sintek, Techniques for organizational memory information systems. Saarländische Universitäts-und Landesbibliothek, 2014.
12. Y. Zhang and M. Liu, "Study on the Influencing Factors of Knowledge Sharing in Supply Chain," in Intelligent Computation Technology and Automation (ICICTA), 2010 International Conference on, 2010, vol. 3, pp. 602-605.
13. H. Zhang, S. Li, W. Yan, Z. Jiang, and W. Wei, "A Knowledge Sharing Framework for Green Supply Chain Management," in Sustainable Design and Manufacturing 2019: Proceedings of the 6th International Conference on Sustainable Design and Manufacturing (KES-SDM 19). 2019, vol. 155, p. 413: Springer.
14. H. Allaoui, Y. Guo, and J. J. J. o. C. P. Sarkis, "Decision support for collaboration planning in sustainable supply chains," vol. 229, pp. 761-774, 2019.
15. D. Chandran and K. Raman, "Awareness and Problems in Implementing Knowledge Management Systems in Medium Sized Business Organizations in Malaysia," J Soc Sci, vol. 19, no. 2, pp. 155-161, 2009.
16. R. A. Van Der Meer, "Knowledge Sharing in inter-organisational collaborations," Deakin University2014.
17. D. Hislop, R. Bosua, and R. Helms, Knowledge management in organizations: A critical introduction. Oxford University Press, 2018.
18. X.-y. Lu, M. Zhao, Z.-q. Li, and Q. Lu, "Influencing Factors Analysis of Hidden Knowledge Sharing in Hospital in the Supply Chain System," Logistics Engineering Management, no. 7, p. 41, 2017.
19. J.-C. Lee, Y.-C. Shiue, and C.-Y. Chen, "Examining the impacts of organizational culture and top management support of knowledge sharing on the success of software process improvement," Computers in Human Behavior, vol. 54, pp. 462-474, 2016.
20. C. L.-h. Chang and T.-C. Lin, "The role of organizational culture in the knowledge management process," Journal of Knowledge management, vol. 19, no. 3, pp. 433-455, 2015.
21. M. I. Eid and I. M. Al-Jabri, "Social networking, knowledge sharing, and student learning: The case of university students," Computers Education, vol. 99, pp. 14-27, 2016.
22. A. Akosile and W. Olatokun, "Factors influencing knowledge sharing among academics in Bowen University, Nigeria," vol. 0, no. 0, p. 0961000618820926, 2019.
23. K. Arun, "Effect of knowledge sharing and supply chain management on organizational performance," International Journal of Knowledge-Based Organizations, vol. 5, no. 3, pp. 19-32, 2015.
24. T. Pei-Lee, C. Y. Chen, W. C. Chin, and Y. Y. Siew, "Do the Big Five Personality Factors affect knowledge sharing behaviour? A study of Malaysian universities," Malaysian Journal of Library Information Science, vol. 16, no. 1, pp. 47-62, 2017.
25. R. G. Bousari and M. Hassanzadeh, "Factors that affect scientists' behavior to share scientific knowledge," Collnet Journal of Scientometrics Information Management, vol. 6, no. 2, pp. 215-227, 2012.
26. S. S. Bharadwaj, S. Chauhan, and A. J. V. Raman, "Impact of knowledge management capabilities on knowledge management effectiveness in Indian organizations," vol. 40, no. 4, pp. 421-434, 2015.
27. S. Top, "Assessing the knowledge sharing in terms of risk level in-house service sector assisted with logistic regression model," Procedia-Social Behavioral Sciences, vol. 58, pp. 802-811, 2012.
28. A. D. Noor, H. S. Hashim, N. Ali, and Research, "Factors influencing knowledge sharing in organizations: A literature review," International Journal of Science, vol. 3, no. 9, pp. 1314-1319, 2014.
29. Z. Gaál, L. Szabó, N. Obermayer-Kovács, and A. Csepregi, "Exploring the role of social media in knowledge sharing," Electronic Journal of Knowledge Management, vol. 13, no. 3, 2015.
30. M. Al-Emran, V. Mezhuyev, A. Kamaludin, and K. Shaalan, "The impact of knowledge management processes on information systems: A systematic review," International Journal of Information Management, vol. 43, pp. 173-187, 2018.
31. T. H. Davenport, "Process management for knowledge work," in Handbook on Business Process Management 1: Springer, 2015, pp. 17-35.
32. H. S. Park and B.-C. Im, "A Study on the Knowledge Sharing Behavior of Local Public Servants in Korea: Structural Equation Analysis," in 한국행정학회 Conference 자료, 2003, pp. 50-63.
33. C. W. K. Kam and S. A. Liew, "Determinants of Knowledge Sharing Culture in Malaysian Technology Firms," in 8th Asia-Pacific Business Research Conference, 2015.
34. D. Gurteen, "Creating a knowledge sharing culture," Knowledge Management Magazine, vol. 2, no. 5, pp. 1-4, 1999.
35. C. T. Small and A. P. Sage, "Knowledge management and knowledge sharing: A review," Information Knowledge systems management, vol. 5, no. 3, pp. 153-169, 2005.
36. H. Ince and M. Çemberci, "The effect of inter firm knowledge sharing on supply chain and firm performance: a conceptual model proposal," Journal of Global Strategic Management, vol. 9, no. 5, pp. 50-61, 2011.
37. S. Sangari Mohamad, "The impact of knowledge management processes on supply chain performance," The International Journal of Logistics Management, vol. 26, no. 3, pp. 603-626, 2015.
38. P. Kaliani Sundram Veera, "Supply chain practices and performance: the indirect effects of supply chain integration," Benchmarking: An International Journal, vol. 23, no. 6, pp. 1445-1471, 2016.
39. S. Sun, R. Law, M. Schuckert, D. Kucukusta, and B. D. Guillet, "From information technology to mobile information technology: Applications in hospitality and tourism," e-Review of tourism research, 2017.
40. M. Klesel, G. Mokosch, and B. Niehaves, "Maturing, Flagshipping and Piggybacking: On the Use of Structuration Theory in Information Systems Research," 2015.
41. M. Jeffries, D. Phipps, R. L. Howard, A. Avery, S. Rodgers, and D. Ashcroft, "Understanding the implementation and adoption of an information technology intervention to support medicine optimisation in primary care: qualitative study using strong structuration theory," BMJ open, vol. 7, no. 5, p. e014810, 2017.
42. G. DeSanctis and M. S. Poole, "Capturing the complexity in advanced technology use: Adaptive structuration theory," Organization science, vol. 5, no. 2, pp. 121-147, 1994.
43. B. Sarwar, S. Zulfiqar, S. Aziz, and K. Ejaz Chandia, "Usage of social media tools for collaborative learning: The effect on learning success with the moderating role of cyberbullying," Journal of Educational Computing Research, vol. 57, no. 1, pp. 246-279, 2019.
44. M. Moussa, "A Literature Survey on Information Communication Technology (ICT) and Management in Organizations," SIU Journal of Management, vol. 3, no. 2, pp. 1-33, 2013.
45. P. M. Blau, "Social exchange," International encyclopedia of the social sciences, vol. 7, pp. 452-457, 1968.
46. K. S. Cook, C. Cheshire, E. R. Rice, and S. Nakagawa, "Social exchange theory," in Handbook of social psychology: Springer, 2013, pp. 61-88.
47. A. Intezari, N. Taskin, and D. J. Pauleen, "Looking beyond knowledge sharing: an integrative approach to knowledge management culture," Journal of Knowledge Management, vol. 21, no. 2, pp. 492-515, 2017.
48. M. W. Mugo, "Influence of information and communication technology on knowledge sharing in research organizations: a case of centers for disease control and prevention in Kenya," Strathmore University, Strathmore University, 2018.
49. N. Supar, "Technological factors affecting knowledge sharing among academic staff in selected Malaysian higher educational institutions and the effect on performance," Journal of Education Vocational Research, vol. 3, no. 7, pp. 234-241, 2012.
50. D. Roba, W. Jimma, and C. Diriba, "Individual, Organizational and Technological Factors Affect Knowledge Sharing Practices in Assosa Hospital, Ethiopia," EUROPEAN ACADEMIC RESEARCH, vol. 5, pp. 2286-4822, 2016.
51. A. A. Gharamah and M. F. Noordin, "Impacts of Organizational Culture, Support and IT Infrastructure on Knowledge Management Success: An Imperial Study in Islamic Country, Saudi Arabia," in 2016 6th International Conference on Information and Communication Technology for The Muslim World (ICT4M), 2016, pp. 19-23.
52. H. Ince and M. Çemberci, "THE EFFECT OF INTER FIRM KNOWLEDGE SHARING ON SUPPLY CHAIN AND FIRM PERFORMANCE: A CONCEPTUAL MODEL PROPOSAL," Journal of Global Strategic Management, vol. 9, p. 51, 2011.
53. Z. Wang, P. N. Sharma, and J. Cao, "From knowledge sharing to firm performance: A predictive model comparison," Journal of Business Research, vol. 69, no. 10, pp. 4650-4658, 2016/10/01/ 2016.
54. C. Marinagi, P. Trivellas, and D. P. Sakas, "The impact of information technology on the development of supply chain competitive advantage," Procedia-Social Behavioral Sciences, vol. 147, pp. 586-591, 2014.

55. F. Farshchi and M. Haghighi, "IMPACT OF INFORMATION TECHNOLOGY ON SUPPLY CHAIN MANAGEMENT (CASE STUDY: BEHNOSH COLA FACTORY)," Indian Journal of Fundamental and Applied Life Sciences, vol. 5, no. S1, 2014.
56. D. E. O'leary, "The use of social media in the supply chain: Survey and extensions," Intelligent Systems in Accounting, Finance Management, vol. 18, no. 2-3, pp. 121-144, 2011.
57. P. Ritala, H. Olander, S. Michailova, and K. Husted, "Knowledge sharing, knowledge leaking and relative innovation performance: An empirical study," Technovation, vol. 35, pp. 22-31, 2015/01/01/ 2015.
58. K. Henttonen, "Knowledge sharing and individual work performance: an empirical study of a public sector organisation," Journal of Knowledge Management, vol. 20, no. 4, pp. 749-768, 2016.
59. A. Al Saifi Said, "The relationship between face to face social networks and knowledge sharing: an exploratory study of manufacturing firms," Journal of Knowledge Management, vol. 20, no. 2, pp. 308-326, 2016.
60. T. Hussein AlShaima Taleb, "Knowledge sharing enablers, processes and firm innovation capability," Journal of Workplace Learning, vol. 28, no. 8, pp. 484-495, 2016.
61. G. S. Kearns and A. L. Lederer, "A resource-based view of strategic IT alignment: how knowledge sharing creates competitive advantage," Decision sciences, vol. 34, no. 1, pp. 1-29, 2003.
62. R. Kumar, Research methodology: A step-by-step guide for beginners. Sage Publications Limited, 2019.
63. K. McCusker and S. Gunaydin, "Research using qualitative, quantitative or mixed methods and choice based on the research," Perfusion, vol. 30, no. 7, pp. 537-542, 2015.
64. J. F. Hair, A. H. Money, P. Samouel, and M. J. E. T. Page, "Research methods for business," 2007.
65. A. H. Schnall, A. Wolkin, and N. Nakata, "Methods: Questionnaire Development and Interviewing Techniques," in Disaster Epidemiology: Elsevier, 2018, pp. 101-108.
66. U. Sekaran and R. Bougie, Research methods for business: A skill building approach. John Wiley & Sons, 2016.
67. JCI. (2019, 2019). Industry Director. Available: https://www.jci.org.jo
68. J. Hair, W. Black, B. Babin, and R. Anderson, "Multivariate data analysis: A global perspective: Pearson Prentice Hall," ed: USA, 2010.
69. S. R. Kathiravelu, N. N. A. Mansor, T. Ramayah, and N. Idris, "Why organisational culture drives knowledge sharing?," Procedia-Social Behavioral Sciences, vol. 129, pp. 119-126, 2014.
70. A. Abdelwhab Ali, D. D. D. Panneer selvam, L. Paris, and A. Gunasekaran, "Key factors influencing knowledge sharing practices and its relationship with organizational performance within the oil and gas industry," Journal of Knowledge Management, 2019.
71. A. Al-Busaidi Kamla, "Knowledge sharing through inter-organizational knowledge sharing systems," VINE Journal of Information and Knowledge Management Systems, vol. 47, no. 1, pp. 110-136, 2017.
72. Z. Yan, T. Wang, Y. Chen, and H. Zhang, "Knowledge sharing in online health communities: A social exchange theory perspective," Information Management, vol. 53, no. 5, pp. 643-653, 2016.
73. R. Kumar et al., "Common Factor Analysis Versus Principal Component Analysis: Differential Bias in Representing Model Parameters," Applied Spectroscopy, vol. 70, no. 9, pp. 1598-1601, 2016.

AUTHORS PROFILE

Farah H. Zawaideh received the BSc degree in Computer Science from Irbid National University in 2002 and the Master degree in CS from New York Institute of Technology in 2004, and then I received my PHD in computer Information System from Arab Academy University in 2008, right now I'm associate professor in CIS, my current research interest in Data mining, Knowledge Management and Artificial Intelligence. I have published more than 25 papers in the reputed Journals and conferences..