

Impact of eSupply Chain on Business Management

Article by Rasheed Daniel Oyaole
Texila American University
E-mail: dannyrexo@gmail.com

Abstract

Introduction: In contemporary corporate scene, one of the most essential and prevalent needs is to satisfy the request of the client in a timely manner. This need has brought about the incorporation of eSupply Chain Management process in business strategy. This is especially prevalent following monumental improvements with incorporating technology into business operations, replacing the previously prevalent and hectic traditional concepts. Considering this, the study explored the various concepts associated with the eSupply Chain Management process, such as its key factors, the various components of the process as well as the various benefits and drawbacks of the process. Lastly, the future scope of the process has also been established in this study to provide recommendations regarding the way in which organisational efficiency can be improved through the incorporation of eSupply Chain Management process rather than the traditional supply chain management process.

Methods: A review of case studies and publications on supply chain and eSupply chain management processes, factors, advantages and disadvantages was carefully done to provide a good understanding and comparison of both systems and understand the impact of eSupply chain management on businesses.

Results: The effective management of information, material and financial resources flow was seen to be important to both traditional and eSupply chain systems, but more critical to eSupply chain systems.

Conclusion: eSupply chain management facilitates the efficiency of other business processes such as procurement and distribution just in time to satisfy customer's expectations.

Keywords: e-supply chain management, e-logistics, e-procurement, competitive advantage, business solutions, integration.

Introduction

eSupply Chain Management refers to the model through which an organization manages its sourcing and procuring relationships between suppliers and manufacturers. In other words, the method makes use of internet-based operations procedures that lead to greater efficiency exchange of goods and services. The concept of eSupply Chain Management have been explored in this study, with special emphasis on the components of the system.

Additionally, the benefits and drawbacks of the system has also been explored to understand the future scope of the system in the manufacturing industry.

eSupply chain management

eSupply Chain Management is one of the most essential systems in the modern business context. This is especially prevalent following monumental improvements with incorporating technology into business operations, replacing the previously prevalent and hectic traditional concepts in relating to clients.

According to Almajali *et al.* (2016), this is even more apparent due to the means of incorporation of globalisation in the way business is conducted and materials are procured for manufacturing. As a result of the homogeneity of the world through the means of trade relationships, the concept of eSupply Chain Management has been gaining more prevalence and preference over the traditional supply chain management systems.

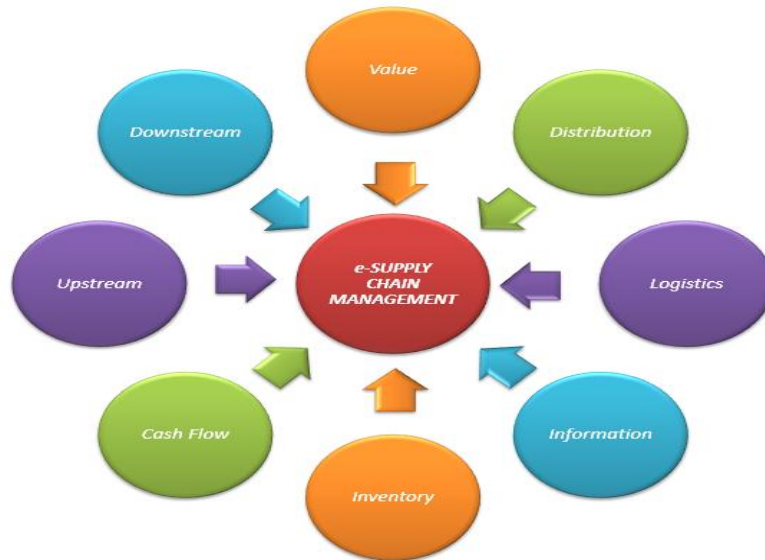


Figure 1. eSupply chain management

(Source: Influenced by Wu *et al.* 2016)

As per the views of Saleheen *et al.* (2018), the concept of eSupply Chain Management helps in making effective utilisation of the services available through the internet to introduce convenience in the various steps of the supply chain management process. This includes aspects like the distribution channels used by the company, the aspect of logistics as well as the management of information and inventory. According to Valverde and Saadé (2015), the complete digitisation of the process can be essential in enabling the manufacturers to focus on delivering the optimal quality of the product. This is in contrast with the fact that in the traditional supply chain methods, the manufacturers had needed to spend some resources communicating with the various organisations and entities at different stages. Thus, the process of eSupply Chain Management can help in making the entire process more effective, convenient and efficient through the means of automation (Ahmi *et al.* 2018).

The process of eSupply Chain Management is generally divided into three main activities and elements - product, information and finance. In order to satisfactorily fulfil all three stages to ensure efficiency in the eSupply chain management, there is a need for the various elements of the process to collaborate and work together. As per the views of Zhou *et al.* (2018), these elements in the process include the manufacturer, the logistics organisation, suppliers, distributors, retail channels as well as the final consumer. Through the means of integrating eSupply chain management, harmonious and mutually beneficial collaboration among these elements can be ensured in an efficient manner.

Key features of supply chain management

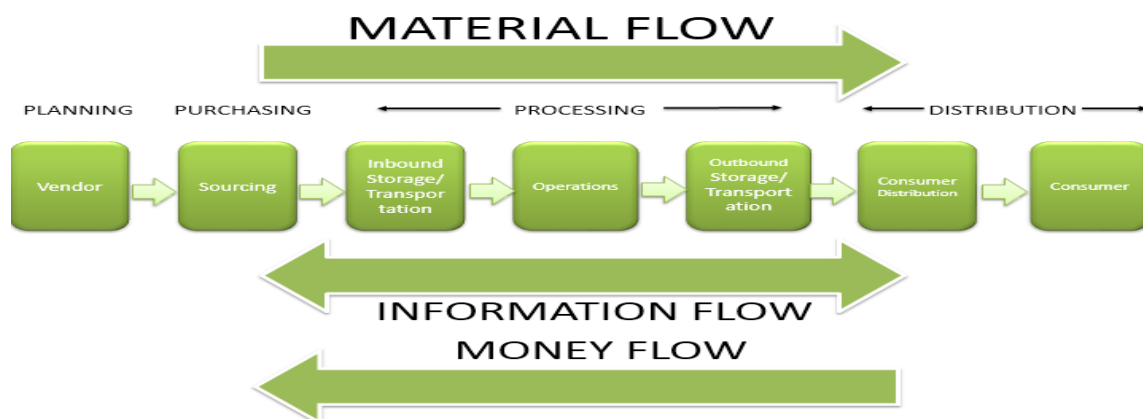


Figure 2. Traditional supply chain

(Source: Influenced by Copacino, 2019)

One of the most essential aspects of eSupply chain management is to ensure the integration of increased efficiency in going through the various steps of managing the supply chain of a product. Through the means of making use of the latest advances in technology in general as well as regarding the way business is conducted across the various elements, the process can ensure that the business is able to gain greater efficiency in their operations through the implementation of fewer efforts on the part of each element.

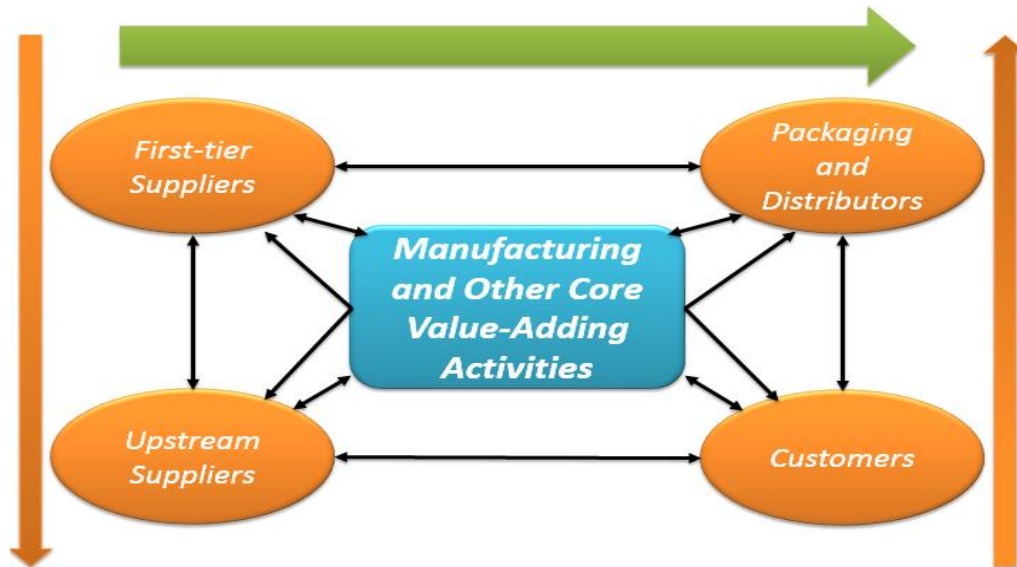


Figure 3. eSupply chain

(Source: Influenced by Sayyadi Tooranloo *et al.* 2017)

Considering this, one of the salient and most essential features of the eSupply Chain Management process is the fact that it makes the entire supply chain management process highly network-centric. According to Masvosvere and Venter (2015), the aspect of the network is introduced is essential in satisfactorily focusing on connectivity needs, transparency in information and incorporating greater cooperation and coordination among the many elements. This incorporation of the network leads to a shift of the information flow process from primarily linear to end-to-end connections. As per the views of Jaglan (2017), this shift in the basic process of information flow further asserts the fact that information among the various elements of the process can be shared in an efficient and timely manner. This helps to prevent any sort of delays that had been prevalent in the traditional means of supply chain management.

According to Masvosvere and Venter (2016), this further lead to increased transparency in the way information is shared along with the aspect of a decreased potential for any errors and miscommunications. As a result, the entire supply chain process is made more effective, convenient and accurate through the incorporation of electronic and network means in the process.

Components of eSupply chain management

e-Procurement

The process of procurement refers to obtaining the materials and goods required to fulfil the orders and demands made by customers. According to Vaidya and Campbell (2016), the process of procurement is equally essential in the eSupply Chain Management process. In this regard, e-procurement enables the manufacturers to be in constant and active communication with existing as well as with potential customers.

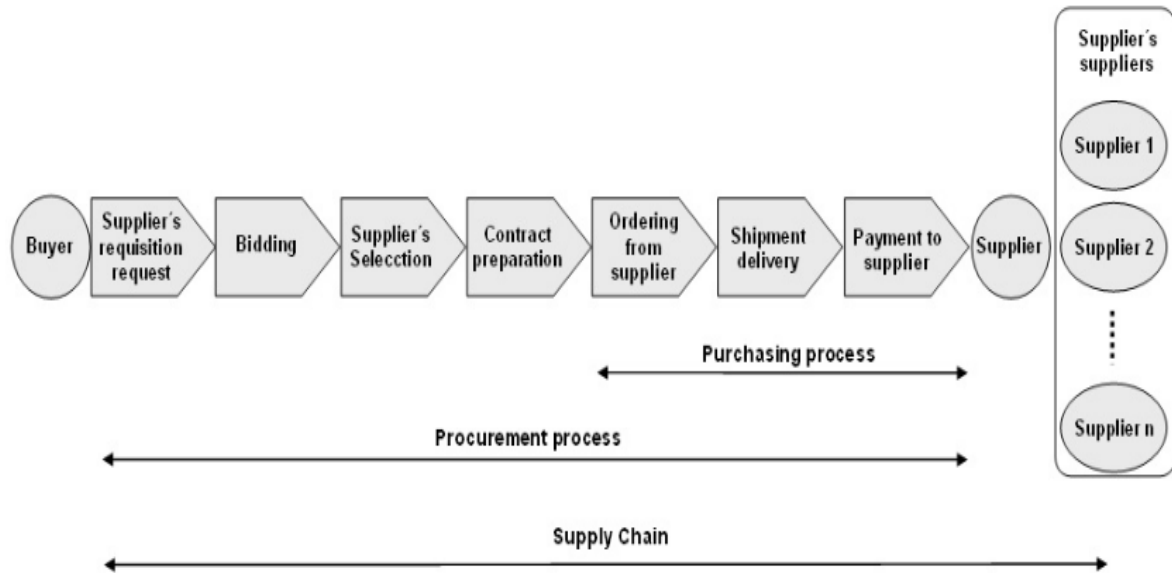


Figure 4. Concepts of e-Procurement

(Source: Influenced by Brandon-Jones and Kauppi, 2018)

This is generally done through the means of ensuring that the decision-making process in the supply chain process is made more convenient through the assistance of organised information through the incorporation of networking and digitalisation. In accordance with the views of Chibani *et al.* (2018), this aspect of the eSupply Chain Management process helps to ensure that the following steps in the process, like logistics, the flow of information as well as monitoring of inventory, can be managed in an effective and convenient manner.

Inventory replenishment systems

The aspect of replenishment systems refers to the management of inventory and replenishing in accordance with the predicted demand of customers to ensure efficiency and accuracy in operations. Through the means of managing the inventory in an effective manner, it can be ensured that there is timely upstream to downstream movement of goods and material, as and when needed (Valverde *et al.* 2016). Through the means of keeping the inventory replenished, greater efficiency in the entire process can be ensured.

In terms of the eSupply Chain Management process, it is essential to state that the process of replenishing the inventory is also carried out through the integration of network and connectivity. As opined by Wu and Chien (2016), through the process of managing the inventory, companies can ensure that their entire eSupply chain can become more efficient in delivering on customer demands for products and materials.

Supply chain collaborative planning, product design and development

Collaborative planning, product design and development in the eSupply chain management process refers to collaboration and coordination among the various elements of the process to ensure that demands are met in an according and timely manner. According to Miraz *et al.* (2016), through the means of synchronising demand and supply requirements, the various elements can conduct collaborative work to incorporate efficiency and accuracy in the manner that demand and supply are fulfilled.

This can also be stated about the need to incorporate collaborative work for the purpose of designing and developing existing products. As per the views of Nasution and Ishak (2019), through the means of feedback from the various elements of the process, the manufacturer can ensure that adequate changes are introduced to the design of the product as well as the composition of the product. This can lead to greater satisfaction on part of the customer, making the process more efficient.

e-Logistics and supply webs

The aspects of logistics and supply webs are some of the most essential aspects of the process, referring to the logistics aspect of the product through the help of internet as well as the channels used to supply the physical product to the intended customers. According to Rogers *et al.* (2018), the process of e-logistics is required to be made more efficient to ensure that the products are shipped to the intended location in a manner that is satisfactory. This is generally followed by the process of adopting means of supplying the product through the use of dedicated and efficient supply chains. According to Sayyadi Tooranloo *et al.* (2017), through the joint aspect of logistics and supply, the eSupply Chain Management process can be made more effective by making use of the network aspect of the method. This can ensure that there is proper communication regarding logistics needs, to ensure that the entire process can be concluded in an efficient manner.

Benefits of eSupply chain management

Reduction in cost

One of the most prevalent aspects of benefit presented by eSupply chain management process is the fact that it can help companies to reduce operational costs. According to Mora-Monge *et al.* (2019), this is because the system allows manufacturing companies to eliminate the need for manual reporting and record-keeping. This helps in preventing any excess costs that could have been incurred as a result of the need to employ extra manpower as well as the physical documentation needs. As a result, it can ensure that the company is able to make better and more judicious use of the resources available to them, preventing any loss of resources in the process.

Potential for competitive advantage

The potential to gain a competitive advantage over competitors is another aspect of benefit that can be attained in the aftermath of incorporating eSupply chain management. Through the means of increasing efficiency in reporting demand and supply needs in the process in addition to digitalised reporting for logistics and supply needs, companies can ensure that their operations process is much more efficient than those used by others. This aspect of increased efficiency can lead to the company gaining a competitive edge over competitors who still use traditional means of the supply chain management system.

Reduction of potential for error leading to timely delivery

The aspect of introducing digital means to overlook the entire process can also help to ensure that there are reduced instances of errors and faults in the entire process. As per the views of Pu *et al.* (2016), this can lead to efficiency in every stage, starting from the need to fulfil the order to ultimately fulfilling customer requirements through the means of integrated logistics and supply measures. Through the incorporation of technology in the process, the automation aspects also lead to the manufacturer becoming aware of any aspect lacking in the process, enabling them to fulfil them accordingly. This can lead to the timely execution of the tasks and delivering the product in accordance with the highest level of quality. This can ultimately lead to an increase in customer satisfaction helping the company to achieve a considerable portion of the market share through the means of customer retention and improved brand image.

Drawbacks of eSupply chain management

Cyber threats

One of the most probable and most detrimental drawbacks of the system is with regard to the potential of external attacks from hackers and competitors. As per the views of Kremljak (2015), the basic need of the system to operate on the online platform makes it highly susceptible to attacks. If these either go undetected or go unaddressed, it can cause immense harm in the form of loss of confidential client information, confidential information of the internal aspects of the company as well as information regarding the internal structure and processes of the organisation. This is regarding the concerning figures presented in the form of annual security breaches recorded on a global scale. According to the

reports, it can be observed that global breaches in confidential business information in 2018 rose by 126% as compared to 2017 (Idtheftcenter.org, 2019). This implies the need for companies to invest heavily in security systems that can prevent loss of essential data due to any such issues.

Network connectivity

The essential need for network connectivity always is another drawback that can render the system useless and inefficient. According to Wang *et al.* (2018), this can be detrimental to the overall operation of the company if the company or even a single element in the process is unable to get access to the online database. This is because if even a single aspect of the process is unaware of the requirements of the process, it can lead to the failure of the whole system due to the lack of fulfilment of that single aspect. As a result, the system can fail due to the lack of delivering upon customer demands, ultimately leading to dissatisfaction among customers and a decrease in the brand reputation and credibility of the company in the market.

According to Mola and Russo (2016), in order to negate any such aspects that can lead to inefficiency of the system, companies are required to implement risk management systems as well. These can be introduced in the form of adequate security and firewall systems in addition to developing a dedicated IT development team that can help in resolving any such issues if they actually occur. In addition to that, the various elements of the process are also required to ensure that they invest adequately in tools that can ensure constant connectivity even in the case of blackouts and other events leading to faults in the network.

Future scope of eSupply chain management

The prevalence of e-Supply chain management process can only be predicted to undergo a massive increase in the future. This is due to the growing requirement of digitalisation of business processes, including the supply chain process. In order to ensure greater efficiency with regard to the practical implementation of the process, there is a need to develop frameworks that can adequately fulfil the business requirements and customise the process in accordance with those requirements.

As influenced by Stohler *et al.* (2018), a well-developed framework can be helpful for companies to develop ways in which they can incorporate the eSupply chain process to obtain better results as compared to the traditional supply chain methods. This can be attained through the means of staying updated with regard to trends in technological developments and incorporating them to increase the level of efficiency in the supply chain. According to Lambert and Enz (2017), this can further be achieved through the means of developing and incorporating adequate security measures that can help to make the eSupply chain management process much more secure. This is an essential requirement for the process in the future sure to the fact that along with improvements in technological advances, the methods of attacking the system also tend to develop in direct proportion.

If this issue is resolved in an appropriate and satisfactory manner, there is a huge potential for the eSupply chain management process to gain increased traction in the contemporary business context. It can be stated to be especially so with regard to the fact that business operations are shifting towards the electronic modes in an alarmingly enhanced manner. This helps to assert the requirement for a dedicated framework that can address these issues and help to assist companies in introducing greater efficiency in the way they operate across the different stages of the supply chain management process (Wong *et al.* 2015). Through the incorporation of dedicated strategies that can incorporate efficiency into the sourcing, making and delivering stages, companies can ensure increased efficiency and success in their operations with regard to return on investments and return in the form of raw finished goods through the means of collaborative teamwork conducted in a digitalised manner.

Conclusion

Our study showed that in accordance with the current prevalence of technology in business operations, the eSupply Chain Management process is more effective than the traditional means of managing the supply chain. This is because the incorporation of technology has helped to make the operations process more efficient, assisting companies to attain a competitive advantage through a

greater potential of increasing customer satisfaction. To ensure maximum efficiency, collaborative work is required to be carried out by each element involved in the process.

However, there are certain aspects of eSupply Chain Management process that can threaten the overall effectiveness and efficiency of the operations. These threats can include aspects like the need for continued and unrestricted network connectivity in addition to the potential for cyber-attack from external and unwanted elements.

References

- [1]. Ahmi, A., Rahim, S.A. and Elbardan, H. (2018). A global trend of the electronic supply chain management (e-SCM) research: A bibliometric analysis. *International Journal of Supply Chain Management*, 7(5), pp.535-542.
- [2]. Almajali, D., Mansour, K. and Maqableh, M. (2016). The Impact of Electronic Supply Chain Management Usage on Firm's Performance. *International Journal of Communications, Network and System Sciences*, 9(6), pp.280-293.
- [3]. Brandon-Jones, A. and Kauppi, K. (2018). Examining the antecedents of the technology acceptance model within e-procurement. *International Journal of Operations & Production Management*, 38(1), pp.22-42.
- [4]. Chibani, A., Delorme, X., Dolgui, A. and Pierreval, H. (2018). Dynamic optimisation for highly agile supply chains in e-procurement context. *International journal of production research*, 56(17), pp.5904-5929.
- [5]. Copacino, W.C. (2019). *Supply chain management: The basics and beyond*, Eds. 4. Abingdon: Routledge.
- [6]. Idtheftcenter.org (2019). *2018 End of Year Data Breach Report*. Available at: <https://www.idtheftcenter.org/2018-end-of-year-data-breach-report/> [Accessed on: 31 October, 2019].
- [7]. Jaglan, V. (2017). *Integrating Case-based reasoning to enhance performance of E-supply chain management system*, 9(4), pp.98-113.
- [8]. Kremljak, Z. (2015). Study of E-commerce Advantages for E-supply Chains. *Annals of DAAAM & Proceedings*, 26(1), pp.134-157.
- [9]. Lambert, D.M. and Enz, M.G. (2017). Issues in supply chain management: Progress and potential. *Industrial Marketing Management*, 62(5), pp.1-16.
- [10]. Masvosvere, D. and Venter, H. (2015). A Conceptual Model for Digital Forensic Readiness in e-Supply Chains. In *ECCWS2015-Proceedings of the 14th European Conference on Cyber Warfare and Security 2015: ECCWS 2015*, Eds. 1. England: Academic Conferences Limited.
- [11]. Masvosvere, D.J.E. and Venter, H.S. (2016). Using a standard approach to the design of next generation e-Supply Chain Digital Forensic Readiness systems. *SAIEE Africa Research Journal*, 107(2), pp.104-120.
- [12]. Miraz, M.H., Habib, M.M. and Molla, M.S. (2016). An overview of information technology tools implementation in supply chain management. *IETI Transactions on Computers*, 2(2), pp.110-117.
- [13]. Mola, L. and Russo, I. (2016). From e-Marketplace to e-Supply chain: Re-conceptualizing the relationship between virtual and physical processes. In *Empowering Organizations*, Eds. 5. Cham: Springer.
- [14]. Mora-Monge, C., Quesada, G., Gonzalez, M.E. and Davis, J.M. (2019). Trust, power and supply chain integration in Web-enabled supply chains. *Supply Chain Management: An International Journal*, 34(3), pp.512-554.
- [15]. Nasution, H. and Ishak, A. (2019). Design of Electronic Supply Chain Management Information System in PT XYZ. In *2019 1st International Conference on Engineering and Management in Industrial System (ICOEMIS 2019)*, Eds. 5. Paris: Atlantis Press.
- [16]. Pu, X., Chan, F.T. and Chong, A.Y. (2016). Development of a unified open e-logistics standards diffusion model for manufacturing supply chain integrations. In *PACIS 2016 proceedings Pacific Asia conference on information systems*, 1(1), pp.112-143.
- [17]. Rogers, Z., Rogers, D. and Leuschner, R. (2018). The Logistics Managers' Index. *Rutgers Business Review*, 3(1), pp.56-78.
- [18]. Saleheen, F., Habib, M.M. and Hanafi, Z. (2018). An Empirical Study on Supply Chain Management Performance Measurement through AHP. *Int. J Sup. Chain. Mgt Vol*, 7(6), pp.349-367.
- [19]. Sayyadi Tooranloo, H., Azadi, M.H. and Sayahpoor, A. (2017). Analysing Factors Affecting Success of E-Supply Chain Management Implementation using Type-2 Fuzzy Group decision making. *International Journal of Industrial Engineering & Production Research*, 28(2), pp.129-149.

- [20]. Stohler, M., Rebs, T. and Brandenburg, M. (2018). Toward the Integration of Sustainability Metrics into the Supply Chain Operations Reference (SCOR) Model. In *Social and Environmental Dimensions of Organizations and Supply Chains*, Eds. 4. Cham: Springer.
- [21]. Vaidya, K. and Campbell, J. (2016). Multidisciplinary approach to defining public e-procurement and evaluating its impact on procurement efficiency. *Information Systems Frontiers*, 18(2), pp.333-348.
- [22]. Valverde, R. and Saadé, R.G. (2015). The effect of E-supply chain management systems in the North American electronic manufacturing services industry. *Journal of theoretical and applied electronic commerce research*, 10(1), pp.79-98.
- [23]. Valverde, R., Saadé, R.G. and Barrad, S. (2016). Empirical investigation of e-supply chain management experience in North American electronic manufacturing services. In *Encyclopedia of E-Commerce Development, Implementation, and Management*, Eds. 8. Pennsylvania: IGI Global.
- [24]. Wang, Y., Yu, Z., Shen, L., Ge, Y. and Li, J. (2018). Different Dominant Models and Fairness Concern of E-Supply Chain. *Complexity*, 2018, 9(2), pp.34-54.
- [25]. Wong, C.Y., Wong, C.W. and Boon-It, S. (2015). Integrating environmental management into supply chains: a systematic literature review and theoretical framework. *International Journal of Physical Distribution & Logistics Management*, 45(2), pp.43-68.
- [26]. Wu, J. and Chien, S. (2016). The Effect of E-Procurement Value to Supply Chain Performance: Supply Chain Integration view. *International Journal of Business and Social Science*, 7(5), pp.413-455.
- [27]. Wu, L., Yue, X., Jin, A. and Yen, D.C. (2016). Smart supply chain management: a review and implications for future research. *The International Journal of Logistics Management*, 27(2), pp.395-417.
- [28]. Zhou, W., Chong, A.Y.L., Zhen, C. and Bao, H. (2018). E-supply chain integration adoption: examination of buyer-supplier relationships. *Journal of Computer Information Systems*, 58(1), pp.58-65.