10th International Scientific Conference
"Business and Management 2018"
May 3–4, 2018, Vilnius, LITHUANIA
Section: Business Technologies and Sustainable Entrepreneurship
http://www.bm.vgtu.lt

ISSN 2029-4441 / eISSN 2029-929X
ISBN 978-609-476-119-5
eISBN 978-609-476-118-8
doi: 10.3846/bm.2018.14
https://doi.org/10.3846/bm.2018.14

MULTI-LAYERED MODEL OF E-LOGISTIC

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Abstract. Coordinating transactions among companies that allow the appropriate movement of goods, services, and information to consumers from suppliers effectively and efficiently still is hard to accomplish. There are many situations in which the logistic performance failed, frequently because of the difficulty of synchronising the business technological systems with the logistic processes, thereby yielding disastrous consequences. Thus causing the loss of time, money, and even certain companies could close and will be weeded out if they do not cope with application of e-logistics while performing their business. This article presents discussion of e-logistics and its application in e-commerce. The application of innovative solutions in logistics will yield posititve outcomes that will help improve the company's overall performance. The consumer satisfaction by e-commerce will be taken in consideration, and in particular by e-logistic solutions. Such methods as literature review, synthesis and and comparison wil be employed.

Keywords: logistics, supply chain, e-logistics, e-commerce, consumer satisfaction.

JEL Classification: M16, M160.

1. Introduction

E-logistics service is a crucial aspect for daily transactions regarding e-commerce industry in order to better satisfy customers' needs as well as to meet companies' objectives. Asia-Pacific area showed a significant increase concerning the use of e-commerce at an extremely fast rate as from 2013 registering a growth rate of 23% on average, whereas China and Indonesia were considered as the most rapid countries with an increase in e-commerce usage, where China registered a growth rate of 65% and Indonesia's growth rate was 71% (Zhang, 2014). Furthermore, the use of e-commerce has increased the customer's satisfaction due to customization feasibility, ease of check out and use, and security assurance (Pham & Ahammad, 2017). The customer's satisfaction in turn will yield a high rate of customer's loyalty which will eventually generate a bigger amounts of revenues and profits. Moreover, integrating transaction costs by using e-logistics resulted in a significant cost saving for the seller in the logistics chain, in addition to higher profitability (Xu, Cheng, & Huang, 2015). Today it is strictly impossible for a business to survive or compete without customer's satisfaction (Nisar & Prabhakar, 2017). From one side, neglecting e-commerce will result in bad consequences on the firm as a whole. Statistics have shown that e-commerce application and development for firms significantly increased their operating income, as well as resulted in the growth of the business income approximately 1.35 times more than those firms who did not participate in e-commerce (Chen & Zhang, 2015). So as to realise higher customer satisfaction in e-commerce business, quality of both products and services are essential have to be considered (Nisar & Prabhakar, 2017). Yet, those factors are not the only ones in e-commerce that directly affect customer's satisfaction in utilizing e-commerce. Other factors may include, novelty of product, customer's expectation, price compared to value and qualities gained. From another side, e-logistic can't be neglected as well because it is considered as an essential factor for the success of e-business including e-commerce (Scholz-Reiter & Höhns, 2003). E-commerce and e-logistics comprise several dimensions that are important to be taken into consideration. For instance, one of these different dimensions for e-commerce is the consumer's concern with the delivery timing being short as much as possible. While e-commerce and e-logistics industry have shown a constant improvement, nevertheless inconsistencies have been existing. One of these incosistencies is between e-commerce and its proper

delivery service that requires more regulation and better standard (Wang & Sun, 2000). Studies done on these aspects are quite fragmented, and more researches are needed to be done.

Thus, the main purpose of the article is to analyse and identify most important areas of research basing on consumers' satisfaction and opinion about e-commerce quality in addition to analyzing different factors of e-commerce that are directly link to e-logistics in order to see in which place they stand.

Methods used in the article are scientific literature analysis, synthesis and comparison.

2. E-commerce types and development

Electronic commerce, also known as e-commerce, refers to transaction processing like purchasing and vending products and/or services via computer networks such as the Internet (Bamfield, 2013). Analysing aspects of e-logistic four main e-business communication models were taken in consideration as most important and relevant (Chen, Martin, & Merchant, 2014): business-to-consumer (B2C), business-to-government (B2G), business to-business (B2B), consumer-to-consumer (C2C), and, in addition, to the mobile commerce were included, because of trends in consumer behaviour. All of which can't be achieved without a strong information and communication technologies (ICT) development. The ICT sector is becoming more strong in the economical sector. ICT development has many advantages such for both firms and consumers, that will aid the e-commerce process. In B2B transactions, there exists an interaction between the firms in order to acquire numerous benefits. In such transactions, a physical person of those firms is absent, and the consumer of the products of the first firm is the second firm. Moreover, here the exchange of information is carried out as well (Barcik & Jakubiec, 2012). Running the B2B model nowadays is achieved with the assistance of several specialized trading platforms. However, personal behaviour and needs of employees working with e-commerce in these firms, should be taken in consideration as well (Jia, Xue, Fu, & Xu, 2018). In B2C model, the firms interacts directly with their end consumers (Leung et al., 2018). The B2C model is most extensively used and explored, however higher attention and more scientific studies should be applied in the area of consumer satisfaction in regard to e-logistic. In C2C model, the presence of physical persons comprise both parties. In other words, here in this model people have the possibility to interact with each other. This interaction process is facilitated by several communication methods and advanced technology. A good example would be those C2C processes occurring through internet auctions. In B2G model, the firm interacts with the national government directly (Qiu, Pang, & Lim, 2012). Business-to-government or B2G refers to business conducted between private sector firms and governments. Here, the interaction is also known as the "state procurement via Internet" (Leung et al., 2018). The mobile commerce, which is also known as the "m-commerce", is the application and utilization of wireless devices, such as mobile phones, and specific aspect of 4 previously discussed models should be considered. Other models, such as C2B, G2B, C2G, B2E, G2E would not be analysed further, or applied in future research of e-logistic as they are not relevant.

Of the above different types of e-commerce, those that deal directly with consumers and consider them as their transaction objectives are B2C and C2C. However, the only difference is that with B2C a business organization is involved with the transactions with consumers, whereas in C2C only consumers' transactions exist with no intermediaries (Leung et al., 2018). B2C transactions are growing tremendously due to the fact that they are characterized by more convenience, thus customers are utilizing more the B2C e-commerce while doing their transactions (Vakeel, Das, Udo, & Bagchi, 2017). According to the Global B2C e-commerce report recorded in 2016 by the E-commerce Foundation, it was registered that approximately 2.5 billion consumers worldwide are now using the internet, among which the majority perform B2C to buy goods online resulting in 2671 billion USD spent on B2C alone. Asia-Pacific and North America are considered to be among the top regions for ranking highest positions with a total B2C e-commerce turnover of 1057 billion for Asia-Pacific alone, and 644 billion USD for North America in year 2016 (Choi & Mai, 2018).

The typical order fulfilment process under the B2C e-commerce business environment is done through several steps (Leung et al., 2018). First, the customers place their orders online, then e-retailers receive orders from various sources. After that, e-retailers launch their products at multiple sales platforms. Next, the order fulfillment starts by making sure that the e-retailers link their operations to the logistics service providers,

which are also known as the "LSP". After receiving customers' orders, the process of internal order processing starts. This happens by ensuring first that order picking from storage are transferred to individual order packing into parcels then the order consolidation into pallets which then are processed to delivery scheduling and planning. After the complete e-fulfillment, the products now are in the final stage which is the outbound delivery. In order to maintain an effective transactions, organizations must be aware of how to apply its knowledge sharing process. Knowledge is the foundation of exclusivity and a feature of uniqueness. Every firm tries to share pertinent information at the right time and via the most suitable methods in order to meet the needs of its customers (Raudeliūnienė, Meidutė-Kavaliauskienė, & Vileikis, 2016). The need for qualified personnel who are able to share specific knowledge is important. Moreover, every resource in the organization counts. Resources must be combined in new ways in order to create something of value, and this is entrepreneurship in its classical sense.

As e-commerce progressed, B2C is considered to be as one of the most important approaches of businesses to improve their own competitive advantages. E-commerce adoption in developing countries such as the Middle East is more complex due to challenges such as insufficient regulatory environments and inadequate infrastructure; and so there is a particular need to study less developed countries (Al-Somali, Gholami, & Clegg, 2015). This is turn is increasing the bad experience of e-commerce to residents of such countries and is worsening the problem.

The issue is that, unfortunately there is no enough data nor studies performed in the Middle East region particularly to check the same variables. As a result, the degrees of customer satisfaction with respect to e-commerce have been studied more intensely. Most studies in this area showed that it is impossible for a business to either survive or maintain competitiveness when lacking convenient levels of general customer satisfaction (Nisar & Prabhakar, 2017). The success of e-commerce does not count only on the business perspective, but the consumer's satisfaction as well. Customer satisfaction is seen as an important concept and a critical common goal for all business activities (Balabanis, Reynolds, & Simintiras, 2006). Furthermore, it is worth mentioning that the development of social media networks lead to novel methods of marketing communication and posed new scientific challenges as well. The rising importance of B2B and B2C communication and the relationship with the consumers is affected by dynamic changes in the e-marketplace. Thus, it is important to comprehend the importance of the social media and to apply the innovative tools for communication with users in order to increase interaction (Davidavičienė, Pabedinskaitė, & Davidavičius, 2017).

3. Consumer satisfaction elements in e-commerce

According to Hansemark and Albinson (2004) "satisfaction is the fulfillment of requirements, goals or desires and this can be reflected by the overall customer attitude towards e-commerce retailers, or an emotional interaction with respect of between what online customers expect and what they really obtain". Another definition of customer satisfaction is that it is considered to be the customer's overall assessment of the products or services after they acquire those (Choi, Wilson, & Fowler, 2013; Choi & Mai, 2018).

From a supply chain perspective, numerous kinds of context information in which a recommendation is given are important for e-commerce customer satisfaction process (Guo & Lu, 2015). Concerning satisfying the customer, there are several methods such as providing improved quality in both products and services. According to American Customer Satisfaction Index (ACSI) which is specialized in measuring the satisfaction of customers in e-commerce, the most important elements to measure customer satisfaction are: perceived value, customer expectations, perceived quality and customer loyalty (Luo & Bhattacharya, 2006).

Perceived value refers to the relationship among product's quality of the product and the price paid for it directly after the customer has received the product between his hands. In other words, it's the customers' assessment of whether the price offered by several online sellers is acceptable, justifiable, or reasonable (Brynjolfsson, Hu, & Rahman, 2009; Cao & Li, 2015).

Customer expectations' refers to the previous shopping experience, friends' advices, as well as distinct information supplied by competitors, all of which will constitute the expectations of customers who in return will compare expectations with the traditional shopping environment so that they are sure to take correct judgments concerning e-satisfaction as a whole (Cao & Li, 2015).

Perceived quality occurs when customers associate experienced quality to expected quality.

They consider part of their satisfaction in a post-consumption experience.

Customer loyalty is a satisfactory attitude towards e-commerce that leads to the recurrence of buying. Hereafter, loyalty is strongly associated to repeated purchases. Consumer satisfaction elements empahsized by diffwerent authors in e-commerce are presented in Table 1.

Table 1. Consumer satisfaction elements in e-commerce (source: compiled by authors)

Consumer satisfaction element	Researchers working in a field	Description
Perceived value	Racherla and Friske, 2012; Cao and Li, 2015; Moreno, Hervas, Pomar, Valantine, and Butiene, 2016; Sullivan and Kim, 2018	The relationship among product's quality of the product and the price paid for it. The customers' assessment of whether the price offered by several online sellers is acceptable, justifiable, or reasonable. The consumer's complete evaluation of the usefulness of a product established on perceptions of what is received and at the same time perception at what is given. Consumers purchasing behaviour depens on the perceived usefulness of the product reviews posted online. How consumers evaluate product quality doesn't only relate to the famous price-perceived quality concept. Other factors such as the brand name, and store name affects perceived value by the customer as well.
Costumer expectation	Cao and Li, 2015; Anthopoulos, Reddick, Giannakidou, and Mavridis, 2016; Aladwani, 2018	The previous shopping experience, friends' advices, as well as distinct information supplied by competitors. Individual consumer's purchasing decision in the new era of social media. E-projects result in lack of success if not able to meet users' expectations.
Perceived quality	Arikan, Yilmaz, and Bodur, 2016; Moreno et al., 2016; Sullivan and Kim, 2018	The Brand Relationship Quality (BRQ) is a crucial determinant of consumer responses to brand extensions. Perceived quality relates to tangibles, staff, complementary services and outcome quality, as well as the relationship with perceived value, emotions, satisfaction and future intentions. Prceived quality is the insight of competitive price and website reputation, all of which affect the concept of perceived value as well as the concept of repurchase behavior.
Costumer loyalty	Luo and Bhattacharya, 2006; Ramaseshan, Rabbanee, and Tan Hsin Hui, 2013; Banytė, Tarutė, and Taujanskytė, 2014; Skačkauskienė, Vilkaitė-Vaitonė, Raudeliūnienė, and Davidavičienė, 2015; Pham and Ahammad, 2017	Customer loyalty is manifested in the different satisfactory attitudes towards e-commerce that leads to the recurrence of buying. Loyalty to a company decreases the quantity of effort done in looking for substitutes while at the same time increasing the customer's readiness to buy from that e-business for the upcoming transactions. Loyalty is affected by several important factors among which are the Order fulfilment, Good return management, and customer satisfaction. Customer commitment in value creation is valuable for firms since it facilitate good understanding as well as satisfaction of customers' needs, and eventually yields crucial customer loyalty. Factors that affect customer's loyalty are brand characteristics, company reputation, company size, the development of a good and continuous communication with the customer. Loyalty is the customer's trust in a B2B in customer's relationship equity, which is the overall discounted lifetime values added throughout the whole current and potential customers of the firm. Factors affecting this equity and hence the loyalty are value equity, brand equity and relationship equity. Loyalty affects directly the financial performance of the firm. Focusing on value equity is a function of customer's behavior which is a function of trust that helps preserving a long-term relationship in the B2B environment with the customer.

End of Table 1

Consumer satisfaction element	Researchers working in a field	Description
		Loyalty development is an essential condition for an increase in profit companies. It is undoubtedly relevant to the success of an organisation.
Timeliness (response time) and convenience	Nisar and Prabhakar, 2017; Leung et al., 2018	Limited time for order processing in e-fulfilment centres, oblige logistics service providers (LSPs) to be tremendously efficient by reengineering the order fulfilment processes as a whole. This may include processes such as new cloud-based e-order fulfilment pre-processing system (CEPS). Reshaping e-fulfilment to meet needs in a shorter time will increase convenience in return. Delivery and shipping time, is an important factor to ensure a high e-service quality, which in turn will lead to more satisfied customer experiene and loyalty due to the order fulfilment speed process.

When all factors, perceived value, customer expectations, perceived quality and customer loyalty are found in optimal levels, customer satisfaction will definitely increase and will be maintained as long as all of these factors are maintained as well.

Conversely, the reduction in customers' satisfaction may be linked to absence of security, pertinent privacy, too slow service, absence of updated technology, as well as bad design of websites (Nisar & Prabhakar, 2017).

Researches concerning customer satisfaction in relation to all stages of online shopping process is limited and Thirumalai and Sinha (2011) were the lone two to discuss the impact of several variables on the process of online shopping process. However, the problem was that their studies do not discuss the importance of post online process whereby the customer's experience and perceived value of the product occur as well as return of the product (Pham & Ahammad, 2017). The recent empirical results given by Griffis, Rao, Goldsby, and Niranjan (2012) demonstrate that the returns in online retailing significantly influence repurchase behavior.

Pham and Ahammad (2017) tried in their studies to fill gaps in pre-purchase, purchase and post-purchase experiences by the customers. Their core results were that online customer satisfaction consists of positive experiences in three online shopping levels. Moreover, they concluded that the most important variables for customer satisfaction are as follows: ease of use and check out, features of web shop including information about diverse products, customization, and security assurances. Though, they did not find the support for the effect of website appearance as evidenced in Rose, Clark, Samouel, and Hair (2012). This may be because their model did not consider the same variables such as the post-sale experience by the customer.

4. E-logistic research areas

E-commerce alone cannot function without the wise application of e-logistics. This is due to the fact that e-logistics is simply a part of e-commerce. E-logistics is an indispensable part special meaning in the context of e-commerce development, i.e. by means of the Internet (Kadłubek, 2015). See table 2.

It is unanimously agreed that logistics refers to the flow of materials in the supply chain. This material flow management is done through several sorts of logistics such as purchasing, warehousing, flow of information, and other processes (Skitsko, 2016). E-logistic was created after the progress of internet and the wide utilization of electronic presentation of information within information logistics. In practice, e-logistics is known as the "Internet-Enabled Logistics" (Gunasekaran, Ngai, & Cheng, 2007). In other words, e-logistics refers to the application of logistic with the utilization of the internet. As much as this sounds simple, yet nevertheless the utilization of the Internet in logistics processes will not necessary refers that logistics can be considered electronic.

E-logistics is fundamentally a complex system, which comprises manufacturers, distributors, logistics hubs, as well as consumers among where an electronic exchange of data between consumers and manufacturers occur through the Internet

with the aid of communication technologies such as websites, mobile phones, and computers. The aim of this digital communication is to decrease data errors, incease progress efficiency in decision-making and other important things. Moreover, in order to buy products online, purchasers have the chance to pay by credit or debit, which are considered to be the best shared online payment means, yet the online payment is rather complex, and necessitates trust. Hereafter, numerous persons who attempt to learn online shopping will choose to quit because of the difficulty of online payment, and security issues. In e-commerce, transactional elements of logistics service are vital, principally the readiness of products and services, communication speed between the performers of commercial operations, scope of the activity, lead time, trust, flexibility and reliability of supply (Skitsko, 2016).

In an old-style supply chain model, products are processed in several levels so that products are transported from the industry to the required retail stores. Then, the end consumers who made the purchase transaction can receive the goods at the physical stores. Today and thanks for the e-logistics, the purchasing process of the end consumers' orders can be received anytime and anywhere by the e-retailer. When orders are put online, the downstream of the e-commerce B2C supply chain comprises a huge number of unidentified end point that are spread worldwide, necessitating consumer-direct transport (Leung et al., 2018).

E-fulfilment, or the fundamental completion operations for e-commerce shipments, is a crucial driver of e-commerce growth, and if e-fulfilment is absent the B2C process will be paralyzed (Agatz, Fleischmann, & Van Nunen, 2008).

Table 2. Some aspects of comparison of E-logistic by e-commerce elements (source: compiled by authors)

Elements	Scientists	Description
Materials flow in e-commerce	Fontaine, Crainic, Jabali, and Rei, 2017	There are six themes in order to relate to material flow in a manufacturing system. Those six themes are Inbound logistics, Capacity, Scheduling Process variation, time, and outbound logistics, respectively.
Warehousing aspects in e-commerce	Leung et al., 2018	The order fulfilment process in traditional warehouses is made up of 4 main facets: order receiving, order storage, order picking and packing, and order delivery. Among these distinct facets, the order-picking is the most labor intensive operation in warehousing procedures and prompts the biggest cost in warehousing . In e-fulfilment, the operating categories in warehousing and distribution are common with respect to traditional order fulfilment. Nevertheless, inside e-fulfilmet centers, the order-picking processes are introduced by end customers who put the orders which necessitate the logistics service providers to accomplish the orders consequently.
Information flows in e-commerce	Saridakis, Benson, Ezingeard, and Tennakoon, 2015	Information flow in e-commerce is done through the Internet, which can help as being a platform to exchange information among both suppliers and customers. Hence, the concept of "The Internet of Things (IoT)" is evolving as a potent progress in information technology, with the capability to increase convenience and efficiency in daily life. The Network externalities show a substantial part in influencing consumers' perception of usage benefits. The problem persists if the networks privacy are invaded.
	Hsu and Lin, 2016	Users share information as well as attitudes concerning products they consider to purchase. Thus, customers do not depend anymore only on the information given by firms via traditional ways using their websites. This is why, SC, which refers to social commerce, is a type of e-commerce whereby consumers utilize the different social tools in order to create, search for and share information and opinions about products, thus making purchase process easier. The difference between SC and traditional e-commerce is that the traditional e-commerce only incorporates tools to make commercial transactions easier, while SC uses its social tools to take commercial advantage of the connections among the users themselves and among the users and the consequent firm.
	Molinillo, Liébana-Cabanillas, and	Legacy clarifications of personal information privacy have considered protecting personal information is the sole responsibly of customers themselves. Despite the fact that several social networkers think that they are technologically smart and that they perform their online transaction process in confidentiality, it was clear

End of Table 2

Elements	Scientists	Description
	Anaya-Sánchez, 2018	that personal information privacy is not right away related neither to the skills nor the users' experience. There is a high risk to become victims of cybercrime, while users with high perceptions of their capability to control information shared on social networking services (SNS) are probably less prone to be victimized.
Payment for delivery models in e-commerce	Wu and Lin, 2018	From the ten critical themes of e-commerce logistics, the first topic which concerns the Southeast Asia's e-commerce logistics payments, will be denoted. This model explains the original unstructured data collections to convey Collect on Deliver (COD) payments so that all their hosted stores could pay via COD. Additionally, setting up e-commerce stores on Facebook and Twitter to provide online payment services.
Reverse logistic models in e-commerce	Chen, Li, and Zhai, 2016	The different links of the supply chain will return a huge number of products, thus e-commerce model in reverse logistics is a major hard problem. The main reasons of reverse logistics in e-commerce activities are inconsistent information and increasing competitive advantage. Suggested solutions would be prevention of reverse logistics by creating firm's own website to offer useful product information enough to make the convenient purchase. Actually, this helps customers take the right decisions, yet it might reduce the returns of the products. Additionally, the firms can improve the system, for example, they have a relatively complete system of control orders. Whereas if the problem had already occurred, then the treatment of existing reverse logistics would be by setting the position upon designing the site, that includes the process to return the product, and the return conditions that consumers can find easily.. Additionally, when businesses design packaging, they can designate the method and rules of return in its every single part.
E-fulfillment	Leung et al., 2018	The typical order fulfilment process under the B2C e-commerce starts when the customers place their orders online, then e-retailers receive orders from various sources. Then, e-retailers launch their products at multiple sales platforms. Next, the order fulfillment starts by making sure that the e-retailers link their operations to the logistics service providers, which are also known as the "LSP". After receiving customers' orders, the process of internal order processing starts. This happens by ensuring first that order picking from storage are transferred to individual order packing into parcels then the order consoli-dation into pallets which then are processed to delivery scheduling and planning. After the com-plete e-fulfillment, the products now are in the final stage which is the outbound delivery.
Order picking in e-commerce	Zu, Hu, Gu, and Seng, 2015	Efficient order picking is a crucial subject to progress the service level and to decrease the total cost. Among all E-commerce logistics processes, order picking is the most labor-intensive and is held responsible significantly to the overall cost. Moreover, it is the largest workload as well as the most complicated and most error-prone. Presently, in numerous B2C E-commerce logistics center warehouses, it's shared that order picking is applied with the rule of naïve first chosen (First Come First Service, FCFS). Founded on the analysis of specific cases, the batch and zone picking strategies are able to successfully shorten the overall working time in and hereby progress the efficiency of management. Order batching strategy based on time delay.
Drop shippimg	Yu, Cheong, and Sun, 2017	Drop-shipping is an order fulfillment process by which a retailer forwards consumer's order to a supplier that in turn procedures the orders and then ships goods directly to the end customers on behalf of the retailer. This process can help retailers concentrate more on marketing and customer acquisition without worrying about order fulfillment. However the negative points of drop-shipping is the order's fulfillment heavy reliance on collaboration with manufacturers because retailers do not have full control of order processing, thus to improve it alignment between both manufacturer and retailer is required.

Although e-logistics plays vital roles in the e-commerce industry, e-logistics participants have been fronted with a diversity of obstacles in fulfilling B2C orders because of the e-fulfilment process being basically dissimilar from the traditional shipments treatment process such as in handling requirements, last mile delivery, inventory management, returns and warehouse management (Esper, Jensen, Turnipseed, & Burton, 2003; Chen & Lin, 2013).

Warehouses are crucial for trade enterprises to beat competitors on the basis of productivity costs. Thus, high productivity and low costs are considered in several warehouses as a competitive weapon. Actually, 75% of warehouses retrieve their goods manually. For warehouse operations, forklifts are the most expensive machines due to investments in equipment and other assets, which are used to support their operations. Necessities for forklifts and costs for operation are critical in these warehouses (Burinskienė, 2015). The order fulfilment process in traditional warehouses is made up of 4 main facets: order receiving, order storage, order picking and packing, and order delivery. However, despite the fact that in the e-fulfilment process there is a resemblance with the traditional order fulfilment in both operating categories in warehousing and distribution, nevertheless order-picking operations in e-fulfilment centers are started by end consumers who put orders necessitating the e-retailers or the logistics service providers to accomplish the orders in a correct manner. Such a demand-driven delivery type in the age of e-commerce, additionally rises the complication of order picking operations, as the order arrival array in more difficult to predict, comparing to traditional huge lot-sized logistics orders for stock replenishment of chosen retail stores (Accorsi, Manzini, & Maranesi, 2014). Therefore, the importance of logistics capability and outsourcing is likely to increase, requiring an entirely new fulfilment infrastructure to handle e-commerce shipments (Leung et al., 2018).

Plentiful bright systems and methods for explaining order-handling decision support in warehouses have been established. Nevertheless, there exists a state of scarcity in the literature on B2C e-commerce order fulfilment in distribution centers, which considers the e-order handling process as well as requirements into attention. (Leung et al., 2018). Only a limited range of papers related to B2C e-commerce can be found in the literature in assessing the degree of B2C trust in e-commerce.

In order to handle the tight delivery necessities of e-commerce orders, e-logistics application via the e-order fulfilment process must be done resourcefully. This necessitates warehouse process reengineering by the logistics service workers. Consequently, a cloud-based e-fulfilment planning system (CEPS) is proposed, for rearrangement and reassessing the stream of e-order fulfilment operations (Leung et al., 2018). That means that in lieu of performing e-order fulfilment operations immediately after orders are received online, the e-orders that are put, are combined in a cloud database for additional order assemblage and consideration. The cloud database system necessitates the development of a good information and communication technology (ICT). Development of (ICT) generates new possibilities for organizations management. Application of ICT in business creates not just opportunities and advantages but cause new challenges for business organizations. Exchange of information, buying and selling products through the internet have become common in today's business transactions. Several people joining virtual groups, organizations and networks for business development reasons, and utilizing such opportunities a lot (Merkevičius, Davidavičienė, Raudeliūnienė, & Buleca, 2015). Thus, ICT development is a must.

5. Multi-layered model of E-logistic

Future research will be done in the Middle East region because this region is one which have huge potential to grow, and at this moment faces a lot of challenges. On the other hand, the specific regions that will be explored later will be performed in order to get comperative data and to apply e-logistic management propositions. The prepared research model done after the theoretical study is presented in Figure 1.

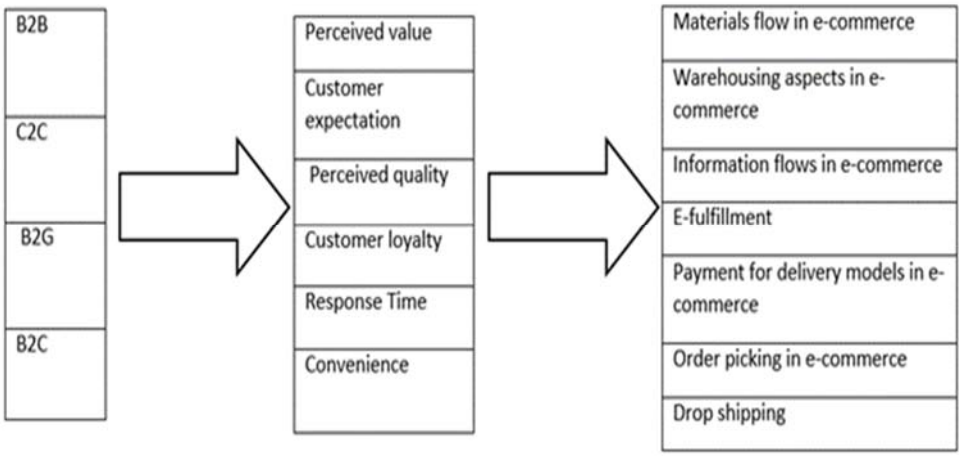

Figure 1. E-logistic research model (source: compiled by authors)

6. Conclusions

E-commerce is increasing tremendously, and the majority of customers today are applying e-commerce in performing online transactions. E-commerce, and especially B2C is perceived important and is growing huge profits for companies worldwide. Yet, in order to maintain a good flow of e-commerce, customer satisfaction is an essential and indispensable part of e-commerce progress that could not be overlooked.

However, e-commerce alone can't be performed with appropriate, complete, and updated e-logistics. At the end, e-commerce whether B2C or B2B, cannot and will not be done without e-logistics because it constitutes a part of it.

A lot of positive things have been attributed to e-commerce and e-logistics, as well different research and studies done to discuss several important points such as the importance of implementation of such procedures. Nevertheless, several gaps have been found and further studies are needed in certain areas and certain regions. For instance, due to bad infrastructure in the middle east, e-commerce and e-logistics can not be implemented efficiently. Moreover, customer satisfaction in terms of the process as a whole has not been taken into consideration in that region as well. Even if we want to talk globally, there are still certain gaps such as the necessity to do further investigations concerning security issues and support for the effect of website appearance. Finally, studies need to be seen from consumers' point of view about the e-commerce quality measuring and perceiving by the consumers.

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