The Relationship between Third party Logistics' Customer Service and Overall Customers' Satisfaction in Courier Companies in Egypt

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Abstract

The aim of this research is to examine the relationship between third party logistics customer service and overall customers' satisfaction in courier companies in Egypt. Logistics customer service dimensions in this research are represented in timeliness, service flexibility, complaints management and service quality dimensions which involve five dimensions of service quality, namely Tangibility, Reliability, Responsiveness, Empathy, Assurance, and service cost that was added by Banomyong and Suptan (2011). Customer satisfaction was measured by eight items. 384 questionnaires were distributed randomly to customers of courier companies located in Greater Cairo (Cairo – Giza – Qalyubia) with total of 327 usable questionnaires were gained as response rate is 85%. Correlation analysis was employed to test the correlation relationship between logistics customer service and customer satisfaction. The results of this study indicated that logistics customer service is positively correlated with customer satisfaction. It is apparent from the present study that managers and decision makers in courier companies to seek and improve the elements of logistics customer service that make the most significant contributions on customer satisfaction

Keywords: Logistics customer service, Service quality, customer satisfaction, third party logistics, courier companies.

ملخص

الهدف من هذا البحث هو دراسة العلاقة بين خدمة عملاء الطرف الثالث اللوجستي ورضا العملاء العام في شركات البريد السريع في مصر. تتمثل أبعاد خدمة العملاء اللوجستية في هذا البحث في وقت التسليم، مرونة الخدمة، إدارة الشكاوى، وأبعاد جودة الخدمة التي تنطوي على خمسة أبعاد رئيسية وهي: الملموسية، الإعتمادية، الإستجابة، التعاطف، وتكلفة الخدمة التي تمت إضافته بواسطة Banomyong and Suptan (2011). وتم قياس رضا العملاء عن طريق ثمانية عناصر. حيث تم توزيع ٣٨٤ استبياناً بشكل عشوائي على عملاء شركات البريد السريع في القاهرة الكبرى (القاهرة - الجيزة - القليوبية) وكان معدل الإستجابة ٨٥% أي ٣٢٧ استبياناً صالحاً للقياس. تم استخدام تحليل الارتباط لاختبار العلاقة بين خدمة العملاء اللوجستية ورضا العملاء. وأشارت نتائج هذه الدراسة إلى ارتباط خدمة العملاء اللوجستية بشكل إيجابي برضا العملاء. ويتضح من هذه الدراسة أن المديرين وصناع القرار في شركات البريد السريع يبحثون عن تحسين عناصر خدمة العملاء اللوجيستية والتي تساهم في تحقيق رضا العملاء.

مصطلحات البحث: خدمة عملاء اللوجستية، جودة الخدمة، رضا العملاء، الطرف الثالث اللوجستي، شركات البريد السريع.

1. Introduction

According to Daugherty et al (2019) in the late 1980s, many companies began to utilize customer service to develop value for customers and proactively leverage logistics to gain differentiation. In times of tough competition when many organizations offer similar products in terms of price, features, and quality, customer service differentiation can provide an organization with a distinct advantage over the competition. In the highly competitive global environment, businesses need to take advantage of any positive opportunity to improve their performance. Today business globalization, customer satisfaction, and strong competition have forced firms to work in collaboration with external partners (Raut et al., 2018). Although logistics management was first established to reduce the costs, the goals of using logistics enterprises gradually changed. The reason for big companies dealing with different activities to use logistics providers is to achieve specific goals including reduction of costs, improvement of products' quality, improvement of flexibility, increase in market coverage and access to extra capacity (Alinejad et al., 2018). Kulyk et al. (2017) defined logistics customer service perspective as "the ability or capacity to satisfy the requirements and expectations of customers, as to the time and place of the ordered supplies by using all available forms of logistics activity, including transportation, inventory management, warehousing, information and packaging".

Customer satisfaction is an important key point for customer-oriented business practices across a large number of companies in different industries. This is because customer satisfaction is the state of mind that customers have about a company when their expectations are met or exceeded over the lifetime of the product or service (Chin et al., 2013). According to Expectancy disconfirmation theory, if disconfirmation is positive (i.e. the level of service provided (perceived service) is actually greater than the expected service level), then it will result in achieving customer satisfaction, that is, if disconfirmation is negative (i.e. the level of service actually provided (perceived service)

is less than the expected service level), resulting in customer dissatisfaction (Tartaglione et al., 2018).

2. Research problem

Changes taking place in the market make it necessary to take a different look at the customer service process, which is still not being given adequate attention in economic entities. However, changes in the external environment necessitate continuous adaptation to these transformations by traders. Once achieved, the level of service will over time be subject to specific depreciation due to changes in consumer preferences and actions taken by competitors. Turbulence and unpredictability of the environment is one of the key challenges for the proper management of this process and at the same time the basic difficulty (Kulyk et al., 2017). There are also increasing dissatisfaction of customers towards service providers. So, researchers and service providers look for better ways to understand how customers perceive the quality of service and how the perception of service quality translate into customer satisfaction and customer loyalty (Chin et al., 2013). it also should be considered that logistics service companies should know their customers because the company, having sufficient information and knowledge about its customers, has more opportunities to make right decisions on the needs of the client, which allows companies to develop new services that provide real value to customers as well as to assess quantitatively the values desired by customers (Kavaliauskienėa et al., 2014). From the research problem the researcher can address the research questions as Follows:

1. Is there a significant relationship between third party logistics customer service dimensions (Timeliness, Service Flexibility, Complaints management, and service quality dimensions "Tangibility, Reliability, Responsiveness, Assurance, Empathy, and Service Cost") and overall customers' satisfaction in Courier companies in Egypt?

3. Research objectives

1. Test the relationship between third party logistics customer service dimensions (Timelines "delivery time", Service Flexibility, Complaints management, and Service quality dimensions "Tangibility, Reliability, Responsiveness, Assurance, Empathy, and Service cost") and overall customers' satisfaction in courier companies in Egypt.

4. Research hypotheses

H1- There is a significant relationship between logistics customer service dimensions and overall customers' satisfaction in courier companies in Egypt.

H1a- There is a significant relationship between Timeliness (delivery time) and overall customers' satisfaction in the courier companies in Egypt.

H1b- There is a significant relationship between Flexibility of service and overall customers' satisfaction in the courier companies in Egypt.

H1c- There is a significant relationship between complaints management and overall customers' satisfaction in the courier companies in Egypt.

H1d- There is a significant relationship between service quality dimensions (Tangibility, Reliability, Responsiveness, Assurance, Empathy, and service cost) and overall customers' satisfaction in the courier companies in Egypt.

5. Proposed Research Framework

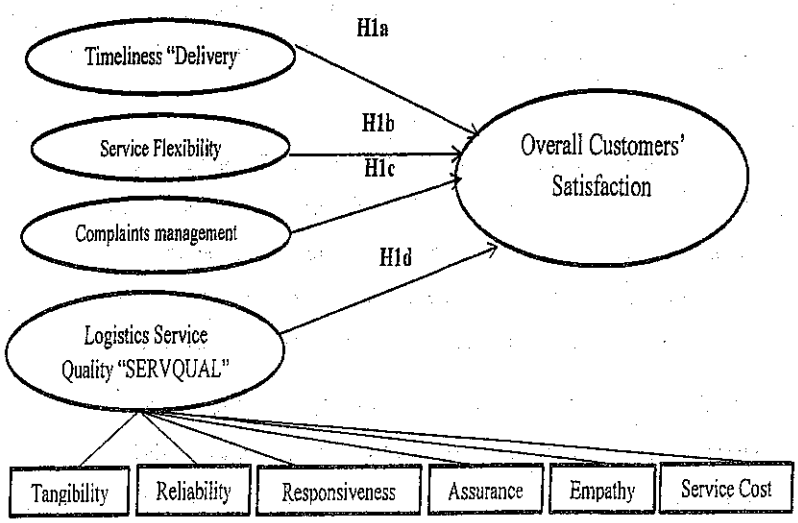

Figure (1): Proposed Research Framework

*Source: Developed by the Researcher based on study of (Pellathy et al., 2018), (Kulyk et al., 2017), and (Banomyong and Suptan, 2011).

6. Literature reviews

6.1 logistics customer service

Logistics customer service in the supply chain is a hardly explored issue. Although there is extensive knowledge of the theory of logistics customer service and business practice, in principle it only pertains to two entities: the provider of a product and the customer who is the recipient of the product (Długosz, 2010). Mesjasz-Lech (2015) defined Logistic customer service as "an element of an enterprise management system understood as a set of decision processes which ensure control over the resources and processes in an enterprise in order to achieve best possible results".

At a high level, LCS represents "the ability to define relevant logistics value for specific market segments and then manage the tradeoffs between resource utilization and service provision to most profitably deliver that value" (Pellathy et al., 2018). Higher expectations in terms of logistics customer service (*LCS*) have become the norm rather than the exception in today's supply chains. Customers still want fast service; however, in the current era of Omni channel retailing and e-commerce, they also want flexible delivery options that are customized and tailored to their individual needs (Daugherty et al., 2019).

There are three major categories; According to Kulyk et al. (2017) customer service is most often examined by dividing its constituent elements into three phases: pre-transaction (such as: a convenient way to contact the company, request response time), transaction (that is, information about the order, a convenient way to order, delivery time, on-time delivery) and post transaction (such as: repairs, warranties, returns, complaints).

Tilokavichai et al. (2012) noted that customer service factors as: Lead time (Time period starts from customer's order to receive product (order cycle time)), Flexibility (Capability to change order in terms of due date and quantity when required), Accuracy (Right quantity, right product, right price in order delivered that mandates accurate invoices to be provided), Reliability (Capability to deliver customer's order within due date), Fill rate (The percentage of product available upon customer request). Frequency (Number of deliveries achieved in a given period of time), organization accessibility (Customers can contact firm to submit questions or complaints), and Complaints management (Solve problems or errors in service process to meet the quality standards).

Also, Pellathy et al. (2018) pointed out that logistics customer service dimensions are service quality, operational flexibility, innovation, and resource utilization.

6.2 Third party logistics (3PL)

In the past decades, an increasing number of companies (3PL users) rely on superior service offerings from 3PL service providers (3PL providers) to improve their supply chain efficiency and effectiveness, and even to achieve competitive advantages (Huo et al., 2017). Narkhede et al. (2017) defined Third Party Logistics (3PL) as "an external organization that performs all or part of an organization's logistics functions. It is a professional logistics group gaining profit by taking charge of part or full logistics in the supply chain of client's enterprise". Third party logistic providers (3PLP) are recognized as "companies or enterprises that perform the various logistics activities of a customer either completely or only in part by transportation, such as ocean or shipping freight, air cargo, truck freight or storing in warehouse facilities". The logistic provider has been widely promoted by the concept of outsourcing. Logistics outsourcing is mainly concerned with cost reduction and improvement (Yazdani et al., 2017).

Ali and Kaur (2018) have identified benefits of this association between the service providers and users like reduction in capital investment in facilities, equipment, information technology, and reduction in manpower cost. Also this association has impact on customer satisfaction, logistics system performance, employee morale, improvement on specific logistics function parameters, improvement in inventory turnover rates, improvement in on-time delivery, and increasing productivity.

6.3 Customer satisfaction

Customer satisfaction is dependent on the congruence of a customer's expectations and the performance of a product or service. Also, it refers to a state of mind and feeling that customers experience when a product or service meets or exceeds their expectations (Jaiyeoba et al., 2018). Customer satisfaction is the overall evaluation to services. It is the reflection customers make to their previous purchase. If it always exceeds their expectation, their loyalty increases. Customer satisfaction should be highly valued in business. Improving customer satisfaction is the only way to business success (Mohammad and Alhamadani, 2011).

Jaiyeoba et al. (2018) showed that the concept of "customer satisfaction" consists of two primary focus areas: "overall satisfaction" and "transaction satisfaction". Transaction satisfaction which is referred to as "service encounter satisfaction", is conceptualized as an emotional or perceptive response by customers to a once-off, post-transaction evaluation of a service encounter. "Overall satisfaction", also known as "cumulative satisfaction", is referred to as an overall customer assessment of the entire process of the product or service encounter, over a period of time.

6.4 Logistics customer service and customer satisfaction

Customer satisfaction is the key factor for carriers to compete for customers. Clients want customized products delivered at a high speed with complete order flexibility and convenience. Gone are the days when a merchant could simply state "allow six to eight weeks for delivery." Today's online customers require instant order tracking from the moment they click the "buy" button until the moment the package arrives on their doorstep. These customers want to be able to reroute packages, determine delivery costs and time-in-transit, and break up their orders to multiple shipping addresses. The shift of power from the seller to consumer has created a new era of expectations (Li et al., 2006).

In view of growing competition in the shipping industry, providing high level of customer satisfaction is critical to sustaining businesses. In general, a shipping firm can satisfy its customers by offering low-cost or differentiated services. One way to differentiate a firm's services from its competitors is by offering high-quality services (Yuen and Thai, 2015). Customer satisfaction is a measure of the performance of an organization's product or service in correspondence to the needs and requirements of customers. For all organizations, whether they belong to service sector, manufacturing sector, etc., customer satisfaction has been emerged as a fundamental objective of operating in the relative industry (Raza et al., 2015).

As competition in the services sector is constantly increasing, the ability of companies to understand their customers and ensure their satisfaction with the service received is becoming more and more significant. Therefore, logistics companies must ensure every customer service related aspect, no matter what it includes: acceptance of orders, their execution or the solution of problems. A client of a logistics company must be sure that

the chosen company understands his needs (Kavaliauskienėa et al., 2014). Most service providers do make a systematic and sustained effort to ensure that their customers are satisfied with the firms' products and service delivery and hence it is expected that in most service satisfaction surveys, the majority of the responses are positively skewed and the modal response to a satisfaction question is typically near the top positive response allowed (Roy and Mukherjee, 2017).

7. Methodology

In this section, we discuss sample and data collection procedures and operational measures of variables used in the research as well as the statistical tests used to evaluate the hypothesis.

7.1 Instruments

In this study, the researcher adopted the descriptive analytical approach, as the researcher collected secondary data through a comprehensive theoretical review of books, periodicals and scientific references related to the subject of the study and on reviewing previous studies and Thesis related to logistics customer service and customer satisfaction. As for the field and analytical part in this study, the researcher collected the initial data through conducting personal interviews with the managers of logistics customer service department in courier companies to reach a description of the logistics customer service dimensions in this study. Also the researcher adopted in the study the deductive explanatory method in order to collect data and test hypotheses. The researcher designed a questionnaire to collect the necessary data, and then analyze that data to test the hypotheses of the study. This approach is based on the study of reality and apparent to test the relationship, so the deductive explanatory method is the appropriate method for the current study. The aim of this research was to examine the relationship between logistics customer service in courier companies in Egypt and overall customers' satisfaction. The data will be collected by developing a questionnaire to measure the independent variables (Timeliness "delivery time", service flexibility, complaints management, service quality dimensions which are "tangibility, reliability, responsiveness, assurance, empathy and service cost)", and measuring the dependent variable which is customer satisfaction. The questionnaire consists of 54 questions

divided into 46 questions to measure the independent variables and 8 questions to measure the dependent variable as shown in table (3.1), using the 5- Likert scale with the anchors Totally agree = 5, agree = 4, Neutral = 3, Disagree = 4, Totally disagree = 1. The questionnaire has been also translated in Arabic because this study is applied in Egypt and the sample is the Egyptian customer of courier companies.

7.2 Variable Measurements

Independent variable: Logistics customer service, with its 4 dimensions; Timeliness (delivery time), Service Flexibility, Complaints management, and Service quality with its six dimensions "Tangibility, Reliability, Responsiveness, Assurance, Empathy, and Service Cost". **Dependent variable**: Overall customers' satisfaction.

The following table (1) will summarize statements measuring which variable and which dimension of those specific variables.

Table (1): List of statements with dimensions and variables measured

Variable	Scale of measurement	Statement	Dimension
Logistics customer service	Murfield et al., (2017), Tian et al., (2010).	1. The company delivers the parcel to you at an appropriate time.	Timeliness "Delivery time"
		2. The company determines the date of parcel delivery in advance.	
		3. Shipments (parcels) arrive at the promised time.	
		4. The company handles the returned shipments quickly.	
	Zhang et al. (2005).	1. The company responds quickly respond to multiple delivery time requirements.	Service Flexibility
		2. The company involves customers to improve services effectively.	
		3. The company responds quickly to customers' feedback effectively.	
		4. The company uses multiple transportation modes to meet schedule for deliveries.	
		5. I can notify the company with the change of my address and respond immediately	
		6. The company take different customers' orders with accurate available to promise.	
		7. The company has accurate records of quantities and locations.	
	Varela-Neira et al., (2010).	1. I have a positive experience when submitting a complaint to the company.	Complaints management
		2. The company handles customer complaints in a satisfactory manner.	
		3. The company addresses customer complaints in an effective and satisfactory manner.	
		4. The company provides satisfactory solutions to my problem.	
	Golshan et al. (2019), Kilibarda et al. (2016), Roslan (2016), Temba (2013), Banomyong and Supatn (2011), Culiberg and Rojsek (2010), Daniel and Berinyuy (2010), Li et al., (2006).	1. The company has modern technological equipment and up-to-date devices.	Tangibility
		2. The company has advanced electronic means of communication.	
		3. The company has modern cars and modern transportation.	
		4. The company provides safe packages for sent parcels.	
		5. Employees are well-dressed and always look neat.	
		6. The physical appearance of the company environment is consistent with the quality and nature of the service provided.	

Variable	Scale of measurement	Statement	Dimension
	Golshan et al., (2019), Kilibarda et al., (2016), Roslan (2016), Temba (2013), Banomyong and Supatn (2011), Culiberg and Rojsek (2010), Daniel and Berinyuy (2010).	1. When the company promises to do something by a certain time, it fulfills the promise.	Reliability
		2. The company performs its services correctly from the first time.	
		3. When you have a problem, the company shows sincere concern in solving the problem.	
		4. The company performs its services at the promised time.	
		5. The company keeps its orders accurately.	
		6. The company performs its services without any errors.	
		7. The company delivers the parcels without any damages.	
		8. The company is keen to provide the same level of service every time.	
	Golshan et al. (2019), Kilibarda et al. (2016), Temba (2013), Banomyong and Supatn (2011), Culiberg and Rojsek (2010), Daniel and Berinyuy (2010).	1. The company informs you with the exact time when the service will be performed.	Responsiveness
		2. The employees in the company provide prompt service for you.	
		3. The employees in the company will be ready to help you at any time.	
		4. The employees in the company will never be too busy to answer your immediate requests	
	Golshan et al. (2019), Kilibarda et al. (2016), Temba (2013), Culiberg and Rojsek (2010), Daniel and Berinyuy (2010).	1. Employees' behavior instills your confidence.	Assurance
		2. You feel secure in business operations in the company.	
		3. The employees in the company deal with you in a courteous and respectful manner.	
		4. The employees in the company have the knowledge to answer your questions.	
		5. Information provided by employees is clear and understandable.	
	Golshan et al. (2019), Kilibarda et al. (2016), Temba (2013), Culiberg and Rojsek (2010), Daniel and Berinyuy (2010).	1. The company devotes personal attention to every customer.	Empathy
		2. The employees in the company devote personal attention to you.	
		3. The company focuses its attention on that which is best for you.	
		4. The employees in the company understand your specific needs.	
		5. The company operating hours suit your needs.	
	Banomyong and Supatn, (2011).	1. The company provides its services with affordable services.	Service cost
		2. The company offers you various offers (coupons, discount).	

Variable	Scale of measurement	Statement	Dimension
		3. The company makes payment easy for you.	
Customer satisfaction	Alnawas and hemsley-brown (2018), Murfield et al. (2017), Chan et al (2016), Kursunluoglu (2014).	1. I am generally satisfied with the customer services offered by the shipping company.	
		2. Customer services offered by the shipping company are close to my ideal customer services.	
		3. Overall, I am very satisfied with the parcel service provided by the company	
		4. I am consistently satisfied with my decision to deal with this company as a service provider.	
		5. The company offers exactly what I expect.	
		6. I feel my experience with the company is positive.	
		7. My choice of this company as a service provider is a wise one.	
		8. I recommend this courier company to friends, neighbors and relatives.	

*Source: Developed by the researcher.

7.3 Population and Sampling

7.3.1 Population

The population of the study is all the customers of Courier companies in Egypt (Parcel delivery services). There is no sample framework for the customers of these companies. Even these companies don't have a list with customers. That is why Egyptian customers all over Egypt are included as part of the population but due to time and cost limitations; inhabitants of Greater Cairo (Cairo – Giza – Qalyubia) will be taken as representatives for the opinion of Egyptian customers. According to data acquired from Central Agency for Public Mobilization and Statistics for year 2018, the number of these companies is 87. The figure (2) shows the market share of the courier companies

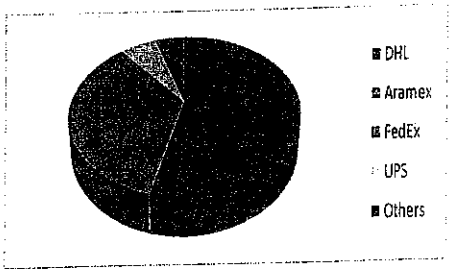

Figure (2): Market share of transport and shipping companies in Egypt

*Source: Developed by the researcher according to DHL annual reports

7.3.2 Sample

The sample of this study is customers of courier companies (Parcel delivery service) that provide parcel and express shipments to international destination by road, air, and sea. And the number of these companies is 87 companies all over Egypt. The data will be collected in a random way from those customers in greater Cairo (Cairo – Giza – Qalyubia). These companies are considered as agencies of Nation Post Authority. The following sample size formula was used for infinite population "unknown" to arrive at a representative number of respondents (http://williamgodden.com): $ss=\frac{Z^2 \cdot p(1-p)}{m^2}$ Using the values of Z=1.96, P=0.5 and M=0.05, the maximum sample for infinite population would be 384.16 or 384. Convenience sampling technique was administered through mall-intercept process of 384 subjects from Cairo city. A total of 384 questionnaires were distributed with total of 327 usable questionnaires were gained. Therefore, the response rate is 85%, which is considered an acceptable response rate. A convenience sampling technique was administered because of its ease and quick in collecting data as it is common among researchers, especially in management studies and service restoration (Piaralal et al., 2016) with a confidence level 95 percent and a margin of error 5 percent.

8. Data analysis and hypothesis test

8.1The descriptive statistics

The descriptive statistics include the sample distribution according to the courier companies as well as the times of customer experience with one of these companies..

8.1.1 Sample distribution

Table (2): Sample distribution according to the courier companies

Companies	Frequency	Valid percentage
DHL	161	49.2%
FedEx	70	21.4%
Aramex	62	19.0%
UPS	16	4.9%
Others	18	5.5%
Total	327	100.0%

As can be seen from table (2), almost half of the sample (49.24%) has repeatedly experienced the DHL. Then, almost two fifth of the sample has repeatedly experienced

the Fedex (21.41%) and Aramex (18.96%). Lastly, only 4.89% has an experience with UPS.

Table (3): Sample distribution according the dealing times

Number of times	Frequency	Valid Percentage
Two times	108	33.0%
3 times	74	22.6%
4 times	24	7.3%
5 times	9	2.8%
more than 5 times	112	34.3%
Total	327	100.0%

According to table (3), more than a third of the sample (34.25%) has experienced the company more than 5 times. As well as, almost another third (33.03%) has experienced the company just two times. Consequently, the last third has experienced the company from 3 to 5 times.

8.1.2 Study variables descriptive statistics

The descriptive statistics of the study variables and its dimensions and measurement items illustrates the valid observations number, the missing values, mean, variance and standard deviation as central tendency and dispersion measures, and the skewness and kurtosis normal distribution measures. Table (4) shows the descriptive statistics of the study variables.

Table (4): Descriptive statistics of the study variables

Variables/ dimensions/ measurement items*	Mean	Variance	Standard deviation	Skewness	Kurtosis
Timeliness	3.92	.645	.803	-.914	.933
Flexibility	3.88	.610	.781	-.771	.592
Complaints management)	3.67	.918	.958	-.524	-.087
Tangibility	4.09	.568	.754	-.844	.932
Reliability	3.93	.652	.807	-.876	.513
Responsiveness	3.93	.651	.807	-.693	.165
Assurance	3.97	.610	.781	-.630	-.081
Service Cost	3.51	.763	.873	-.210	-.211
Service Quality	3.88	.482	.694	-.610	.186
Logistics customer service	3.84	.736	.542	-.750	.577
Customer satisfaction	3.89	.819	.905	-1.143	1.187

According to table (4), the number of valid observations per measurement item is 327; therefore, there is no missing data. As well as, the minimum value is not less than 1 which is the lowest value on the 5-point likert type scale (1 totally disagree – 5 totally agree). Similarly, the maximum value per item is not higher than 5 which is the highest value on the above mentioned scale. This reflects the data cleaning and screening process accuracy. Moreover, on one hand, the lowest mean of the all measurement items is 3.09 ± 1.295 on the 5-point likert type scale (1) totally disagree to (5) totally agree. On the other hand, the highest mean of the all measurement items is 4.25 ± 0.912 on the 5-point likert type scale (1) totally disagree to (5) totally agree. In addition, there is a violation of normality assumption once all measurement items' skewness and kurtosis scores are not zero. However, researchers mentioned that in social science it is common to violate the normality assumption. Hence, there is no serious problem to apply the parametric analyses to test the hypotheses if the skewness of each item within the range (+3:-3) and the Kurtosis within range (+10:-10). This is common in samples over 100 cases. (Kline, 2015; Tabachnick and Fidell, 2007). Therefore, the researcher can proceed with the inferential statistics to test the proposed hypotheses.

8.2 The inferential statistics:

The inferential statistics include the Pearson correlation analysis using SPSS v.24 as it will be used at to test the third hypothesis. Also, it includes the Structural Equation Modelling using Smart PLS v.3.2.8 (Ringle et al., 2015) to test the second hypothesis. Moreover, it includes the one sample *t*-test to test the third hypothesis. In addition, it includes the planned comparisons one-way Analysis of Variance (ANOVA) to test the fourth hypothesis. Finally, it has the repeated measures ANOVA to test the fifth hypothesis Using SPSS v.24.

8.2.1 Correlation analysis:

This section illustrates the results of the Pearson correlation analysis to figure out the direction and significant relationships between the independent variables and the dependent variable in the conceptual model, as well as, to check the multicollinearity issue among the independent variables.

Table (5): Correlation analysis

Variable*	X1	X2	X3	X41	X42	X43	X44	X45	X46	X4	X	Y
X1	1											
X2	.808**	1										
X3	.668**	.783**	1									
X41				1								
X42				.767**	1							
X43				.702**	.849**	1						
X44				.666**	.837**	.845**	1					
X45				.670**	.809**	.791**	.825**	1				
X46				.538**	.534**	.492**	.541**	.564**	1			
X4	.781**	.853**	.758**							1		
X											1	
Y	.763**	.804**	.724**	.679**	.878**	.830**	.88**	.84**	.555**	.899**	.869**	1

** Confidence level 99%

As can be seen from table (5) at the last line, there is a significant positive relationship between the logistics customer service (X) and the customer satisfaction (Y) by 86.9% at confidence level 99%. Accordingly, the logistics service quality dimensions have significant positive relationships with the customer satisfaction. In this regard, SERVQUAL has the highest correlation coefficient with the customer satisfaction then flexibility, then timeliness (delivery time), and finally complaints management. Moreover, all the correlation coefficients between the logistics customer service dimensions are positive and range between 0.758 and 0.853. As well as, all the service quality dimensions are positively correlated to each other. Their correlation coefficients range between 0.492 and 0.849. To this end, since all these correlation coefficients are less than 0.9, the multicollinearity between the independent variables/dimensions is not an issue in the current study.

8.2.2 Structural Equation Modelling:

The structural Equation Modelling can be employed to test the multi hypotheses conceptual models using Smart PLS v.3.2.8 since it can analyse a series of regressions with more accuracy and less restriction than the multiple regression analysis. As well as, it can analyse a non-normal data and get accurate results. Moreover, it can analyse different measurement levels either Low order or High order constructs as well as, different measurement types either Formative or Reflective constructs (Hair et al., 2011; 2014; 2019). Therefore, its use has a widespread reputation in Marketing studies (Hair et al., 2012). Hence, the researcher follows a two-stage approach to apply the PLS-SEM. Where the first stage aims to build the measurement model, the second stage aims to test the structural model.

The first stage of the SEM includes six steps to assess and build the measurement model. First: model identification and constructs specifications. Second: draw the relationship between the constructs to build the theoretical model. Third: assess the theoretical model based on validity and reliability criteria. Fourth: improving the invalid theoretical model. Fifth: building the measurement model. And finally, assess the measurement model based on the same theoretical model assessment criteria (Hair et al., 2010; 2014; Malhotra, 2010). To this end, the researcher can utilize the use of Smart PLS by merging the first and second steps by specifying the constructs and building the theoretical model at the figure (3).

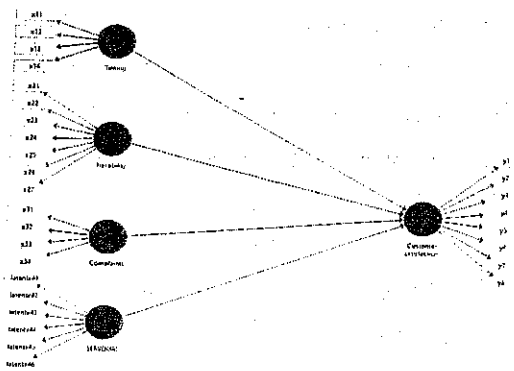

Figure (3): The Theoretical model

From figure (3), there are four exogenous variables, namely, Timeliness (delivery time), Flexibility, Complaints management, and SERVQUAL, and one endogenous variable which is Customer satisfaction. All variables are reflectively measured where the researcher can change the order of the observed variables, measurement items, and remove any of them to enhance the construct measurement quality without reducing the measurement coverage. While the Timeliness (delivery time), Flexibility, Complaints management, and Customer satisfaction are measured at a first order level, the SERVQUAL has been measured at a reflective-reflective second order level. In this vein, the researcher adopts a disjoint two-stage approach to build up the high order construct of the SERVQUAL (Sarstedt et al., 2019). The first stage was employed to build the measurement model from the SERVQUAL dimensions as a first order reflective constructs to get their latent variables scores and the second stage was employed to build the measurement model from the SERVQUAL construct as a first order reflective construct and the dimensions latent variables scores used as the observed variables. Furthermore, the third stage aims to assess the theoretical model depending on the validity and reliability criteria of each measurement item/dimension/variable. The measurement item reliability can be assessed by the outer loading. As well as, the construct validity can be assessed by the convergent validity and the discriminant validity. Finally, the internal consistency of the construct reliability can be assessed by the Cronbach's alpha and the Composite Reliability (Hair et al., 2014). Table (6) illustrates the outer loadings if the measurement items/dimensions.

Table (6): Item loadings at the theoretical model

Construct/items*	Timeliness	Flexibility	Complaints management	SERVQUAL	Customer satisfaction
x11	0.867				
x12	0.717				
x13	0.895				
x14	0.775				
x21		0.835			
x22		0.843			
x23		0.795			
x24		0.759			
x25		0.664			

Construct/items*	Timeliness	Flexibility	Complaints management	SERVQUAL	Customer satisfaction
x26		0.806			
x27		0.816			
x31			0.842		
x32			0.904		
x33			0.916		
x34			0.922		
x41				0.832	
x42				0.934	
x43				0.916	
x44				0.923	
x45				0.905	
x46				0.678	
y1					0.899
y2					0.841
y3					0.887
y4					0.908
y5					0.867
y6					0.926
y7					0.924
y8					0.884

As can be seen from table (6), the outer loading for each item/dimension is higher than 0.4, the threshold value. Therefore, none of the measurement items is recommended to be deleted. Accordingly, the researcher can proceed with the validity and reliability assessment. Regarding the construct validity, first, the convergent validity measures to what extent the measurement items are positively correlated together to measure the latent variable. The convergent validity for each latent variable can be measured using the Average Variance Extracted AVE. A latent variable AVE = (the Sum squares of outer loadings)/n and it should be at least 0.5. (Kline, 2015; Byrne, 2011; Hair et al., 2010; and Malhotra, 2010). Table (7) illustrates the results of the convergent validity using AVE at the theoretical model.

Table (7): Convergent validity assessment at the theoretical model

Latent variables	Average Variance Extracted (AVE)
Timeliness	0.667
Flexibility	0.625
Complaints	0.804

Latent variables	Average Variance Extracted (AVE)
SERVQUAL	0.756
Customer satisfaction	0.796

As in table 7, the AVE for each dimension of the logistics customer service and the Customer satisfaction is higher than 0.5. Therefore, the construct convergent validity has been established. Consequently, the researcher can proceed with assessing the discriminant validity. In order to confirm construct discriminant validity, each latent variable measurement items should distinguish the latent variable from other latent variables at the same model. Hence, a discriminant validity can be established, according to Fornell Larcker criterion, if the latent variable AVE is higher than the squared correlation between this variable all each other variable at the same conceptual model (Byrne, 2011; Hair et al., 2010; Kline, 2011; Malhotra, 2010). Table (8) reports the results of the discriminant validity at the theoretical model.

Table (8): Discriminant validity assessment at the theoretical model

Variables	Complaints management	SERVQUAL	Customer satisfaction	Flexibility	Timeliness
Complaints management	0.896				
SERVQUAL	0.768	0.869			
Customer satisfaction	0.729	0.912	0.892		
Flexibility	0.789	0.863	0.813	0.790	
Timeliness	0.675	0.791	0.773	0.819	0.817

According to table (8), the logistics customer service dimensions lack the discriminant validity since the square root of SERVQUAL and Flexibility AVEs are less than the correlation between each of them and the customer satisfaction. Moreover, the Square root of the Timeliness AVE is less than the correlation between the Timeliness and the Flexibility. Therefore, the theoretical model assessment process should be stopped since the theoretical model needs to be improved. Moreover, the fourth step aims at improving the theoretical model by removing the lowest item loadings and the cross loaded items and rerun the whole model assessment criteria again after eliminating each measurement item especially, the discriminant validity until the measurement model is figured out. Accordingly, the fifth step aims at illustrating the measurement model. Figure (6) shows the measurement model.

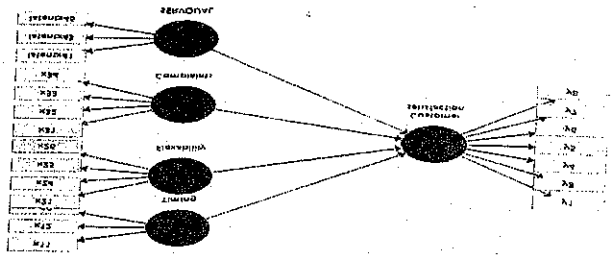

Figure (4): Measurement model

As can be seen from measurement model in the figure (4), compared with figure (3), the following measurement items are removed for cross loading purposes to enhance the theoretical mode X14 in Timeliness, X27, X23, X22 in Flexibility, X42, X44, X45 in SERVQUAL, and Y2 in the Customer satisfaction. Finally, the sixth and last step is to evaluate the measurement model. Table 9 reports the results of the measurement items' outer loadings in the measurement model.

Table (9): Items loadings at the measurement model

Construct/items*	Timeliness	Flexibility	Complaints management	SERVQUAL	Customer satisfaction
X11	0.895				
X12	0.740				
X13	0.919				
X21		0.848			
X24		0.805			
X25		0.713			
X26		0.843			
X31			0.842		
X32			0.903		
X33			0.916		
X34			0.922		
X41				0.889	
X43				0.896	
X46				0.762	
Y1					0.893
Y3					0.891
Y4					0.908
Y5					0.869
Y6					0.928
Y7					0.934
Y8					0.893

As can be seen from table (9), the outer loading for each item/dimension is higher than 0.4, the threshold value. Therefore, none of the measurement items is recommended to be deleted. Accordingly, the researcher can proceed with the validity and reliability assessment. Table (10) illustrates the results of the convergent validity using AVE at the measurement model.

Table (10): Convergent validity assessment at the measurement model

Latent variables	Average Variance Extracted (AVE)
Timeliness (Delivery time)	0.731
Flexibility	0.646
Complaints management	0.804
SERVQUAL	0.725
Customer satisfaction	0.815

As in table (10), the AVE for each dimension of the logistics customer service and the Customer satisfaction is higher than 0.5. Therefore, the construct convergent validity has been established. Consequently, the researcher can proceed with assessing the discriminant validity. Table (11) reports the results of the discriminant validity at the measurement model.

Table (11): Discriminant validity assessment at the theoretical model

Variables	Complaints management	SERVQUAL	Customer satisfaction	Flexibility	Timeliness
Complaints management	0.896				
SERVQUAL	0.740	0.851			
Customer satisfaction	0.719	0.820	0.903		
Flexibility	0.752	0.778	0.755	0.804	
Timeliness	0.628	0.717	0.750	0.746	0.855

As can be seen from table (11), since the square root of each of the latent variables AVE is higher than the correlation between this construct and other constructs at the same model, the discriminant validity has been established for all variables at the measurement model. Accordingly, the researcher can proceed with the reliability assessment. The construct reliability measures to what extent the future research can repeat the same measurement items in measuring the same construct. A construct reliability can be assessed by the Cronbach's alpha and the Composite Reliability (CR). In SEM, the CR is better measuring the construct reliability by internal consistency

means. A construct reliability can be confirmed when each of the two abovementioned criteria is higher than 0.7 (Malhotra, 2010). Table (12) shows the results of the constructs' reliability at the measurement model.

Table (12): Reliability assessment at the measurement model

Latent variables	Cronbach's Alpha	Composite Reliability
Timeliness	0.818	0.879
Flexibility	0.816	0.890
Complaints	0.918	0.942
SERVQUAL	0.811	0.887

As can be seen from table (12), each construct at the measurement model is reliably measured. Hence, the researcher can proceed with the second stage of the SEM which is the structural model. The structural model consists of three main steps, namely, the multicollinearity assessment, the hypotheses testing, and the predictive ability (Hair et al., 2019). To begin, the first step of the structural model assessment is the multicollinearity checking using the Variance Inflation Factor (VIF) which should be ranges between 0.2 and 5 for all the independent variables. Table (13) illustrates the results of the multicollinearity assessment.

Table (13): The multicollinearity assessment

Variables	VIF to the Customer satisfaction
Complaints management	2.682
SERVQUAL	3.228
Flexibility	3.602
Timeliness	2.526

As can be seen from table (13), the VIFs range between 2.526 to 3.602 which are within the proposed range 0.2:5. Therefore, the researcher can proceed with the second step, which is the hypotheses testing. Table (14) shows the results of the hypotheses testing (the sub hypotheses of the first main hypothesis).

Table (14): The sub hypotheses testing of the first main hypothesis

	Hypotheses	β	t value	p. value	Result
H1	Logistics customer service -> Customer satisfaction	0.861	66.153	0.000	Supported ***
H1a	Timeliness -> Customer satisfaction	0.263	4.637	0.000	Supported ***

	Hypotheses	β	t-value	p- value	Result
H1b	Flexibility -> Customer satisfaction	0.106	1.900	0.058	Not supported
H1c	Complaints management -> Customer satisfaction	0.150	2.876	0.004	Supported **
H1d	SERVQUAL -> Customer satisfaction	0.439	7.376	0.000	Supported ***
	Responsiveness -> Customer satisfaction	0.143	2.468	0.014	Supported *
	Reliability -> Customer satisfaction	0.202	3.271	0.001	Supported ***
	Empathy -> Customer satisfaction	0.324	6.952	0.000	Supported ***
	Assurance -> Customer satisfaction	0.263	4.431	0.000	Supported ***
	Tangibility -> Customer satisfaction	0.036	0.786	0.432	Not supported
	Service cost -> Customer satisfaction	0.050	1.452	0.147	Not supported

As can be seen from table (14) the logistics customer service has a significant positive correlation with customer satisfaction by 86.1% at confidence level 99.9%. Therefore, H1 is supported. Timeliness (Delivery time) has a significant positive correlation with the customer satisfaction by 26.3% at confidence level 99.9%. Therefore, H1a is supported. Flexibility has a non-significant positive correlation with the customer satisfaction by 10.6% at confidence level 95%. Therefore, H1b is not supported. Complaints management has a significant positive correlation with the customer satisfaction by 15% at confidence level 99%. Therefore, H1c is supported. The SERVQUAL has a significant positive correlation with the customer satisfaction by 43.9% at confidence level 99.9%. Therefore, H1d is supported. With regard to the SERVQUAL dimensions: Responsiveness has a significant positive correlation with the customer satisfaction by 14.3% at confidence level 95%. Reliability has a significant positive correlation with the customer satisfaction by 20.2% at confidence level 99.9%. Empathy has a significant positive correlation with the customer satisfaction by 32.4% at confidence level 99.9%. Assurance has a significant positive correlation with the customer satisfaction by 26.3% at confidence level 99.9%. Tangibility has a non-significant positive correlation with the customer satisfaction by 3.6% at confidence level 95%. Service Cost has a non-significant positive correlation with the customer satisfaction by 5% at confidence level 95%. Lastly, overall, the structural model as in figure (3.4) with its prosed relationships can

explain the change in Customer service by R2= 74.4% (the variance factor) (Hair et al., 2014).

9. Conclusion

The research aimed to study the relationship between the logistics customer service and overall customers' satisfaction. The results showed that the H1a was accepted, as the delivery time was positively correlated with the satisfaction of the courier companies by 26.3%, at a confidence level of 99.9%. also The results showed that the H1b was not accepted, as the service flexibility is positively correlated with the overall customers' satisfaction in a non-significant rate of 10.6%, at a confidence level of 95%. Also, The results indicated that H1c was accepted as the complaints management is positively correlated with the overall customers' satisfaction by 15%, at a confidence level of 99.9%. also, The results indicated that H1d was accepted, as the service quality is positively correlated with the overall customers' satisfaction by 43.9%, at a confidence level of 99.9%.

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