SUSTAINABLE CONTAINER HAULAGE INDUSTRY IN MALAYSIAN WEST PORTS: SERVICE QUALITY PERSPECTIVE

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The challenges faced by the haulage industry in meeting with the rapid growth of eminent volume of global containerized cargoes have entailed for reengineering of the industry. Despite of the remarkable research on service quality that measures the customer service satisfaction level in service sector, there is a lack of empirical studies on the haulage industry. Considering the fact of measuring service quality within container transportation services is relatively different compared with the services marketing, there is a need to look into service quality dimensions for the industry. This study focused on service quality rendered by haulage provider and derived service quality determinants critical to haulage industry in Malaysia. These determinants will be gauged by adopting the modified version of SERVQUAL model, which is the most widely used instruments of service quality and the Gap Model of Service Quality by Parasuraman *et al*, was used to gauge the service gap. By using sequel questionnaires, a survey was conducted with random sampling of selected manufacturers in the hinterland of West Coast Ports, Malaysia to measure the sustainable dimensions to service quality in business-to-customer setting of haulage industry which in turn considered the most critically important by customer.

Key Words : Sustainable Service Quality, Haulage Industry, Business-to-Customer Setting.

1. Introduction

The new edge in globalization and international trade using container has generated an influx of growth in containerization ever since the 1980s which led to the rapid growth of world containers throughput at local ports. According to Trover (1997) shipping trends and the impact on Asian countries, each unit of loaded (laden) container moved (including transshipment container) will pass through an Asian container port at least once and three out of every four boxes of containers will either end up or originated from Asian ports. This led to the rapid growth of container throughput in local ports. This in turn resulted in congestion at the ports and delays in delivery of containers to their destinations. The problem reached a level at which, causes manufacturers to incur excessive cost for storage rent charges and delays at the port.It was indicated that one of the factors contributing to the problem is the inefficiency of the hauliers in meeting the demand and requirements of the customers. Hence, the new dimension of international trade and global containerized cargoes calls for the reengineering of the shipping industry and inland container transportations that is the haulage industry.

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According to Mohd Zaid and Shah (2007) that the haulage industry is one of the key components in determining the efficiency and effectiveness of their customer, which generally meaning the entire supply chain of Malaysian Industry. Hence, the haulage provider acts as the backbone that facilitates the country economy and industry that provides value-added services. The service industry has played the significant role by contributing 47.6 % to the Gross Domestic Product (GDP) in 2009 (Department of Statistic malaysia, 2009). This gaining momentum has to be sustainable from year to year whereby the Malaysia Haulage Industry have to maintain an adequate fleet and rendered efficient *service quality* to remain competative in local and global market.

The current situation of the business-to-customer setting in haulage industry become more exaggerate with rise in the movement of containerized cargo as a result of booming industrial growth in Malaysia due to Malaysian robust economy and opening of new corridors economic regions such as Iskandar Economic Zone, North Economic Zone (NCER), (ECER), etc under 9th Malaysian Plan. According to manufacturer index there was an increase of 13% growth in 2005 compared to year 2004 of containerized cargo movement. These needs an immediate solutions to the haulage industry problems in meeting the demand of manufacturing industries. Steps have to be taken in order to ensure that the manufacturing operations can be run smoothly, Malaysian ports remain competitive and Malaysian economy and its international tread not being dampen by the problems and strucutral weakness that engulfing the service quality of Malaysian haulage industry. Thus, various measures has to be taken to improve the bottle neck of the haulage industry within a short span of time which critically called for more studies on haulage service quality to be conducted.

This study focused on the service quality of container haulage indsutry in the West coast ports in Malaysia, which could be categorized under the activities connected to the supply of services, or the final users (Fiorenzo and Carlo, 2000).

2. Problem Statements

This study is conducted to investigate on service quality rendered by haulage provider and derived critical service quality determinants to haulage industry in Malaysia that one of the key factors in contributing to success or failure of business-to-customer setting.

The haulage provider should begin to realize the best way to customize needs of their clients base and to enhance the local haulage performance as to eventually positioning the Malaysian haulage industry as one of the key players in the region. In achieving the above national agendas the related parties have firstly to deal with the problems and challenges faced by the ingenious hauliers business. Which currently it is one of the weakest link in the inland transportation chain of container (cargo) movements as compared to the performance of efficiency of other major ports in Malaysia (MNCP Report, 1998).

i.   At the same time the new development in the haulage industry such as new regulation, increasing price of fuel, new technology, changing work force needs, undercutting pricing competition (or pricing war) and customer demanding behaviour give additional pressure to the management of haulage business. With these increasing challenges the haulage business have to assess the most significant determinants and key contributor to service quality of haulage provider.

ii. To reveal the relationship between perceived gap and customer expectation level on the haulage service quality by analysing the structural weakness that engulfing the service quality of Malaysian haulage industry

3. Objectives of Study

This study embarks on the following objectives:

iii. To assess the most significant determinants and key contributor to service quality of haulage provider.

iv.   To reveal the relationship between perceived gap and customer expectation level on the haulage service quality.

v.   Analysing the structural weakness that engulfing the service quality of Malaysian haulage industry

4. Methodology

A survey was conducted at industrial areas at west coast ports of Malaysia as shown in figure 1.
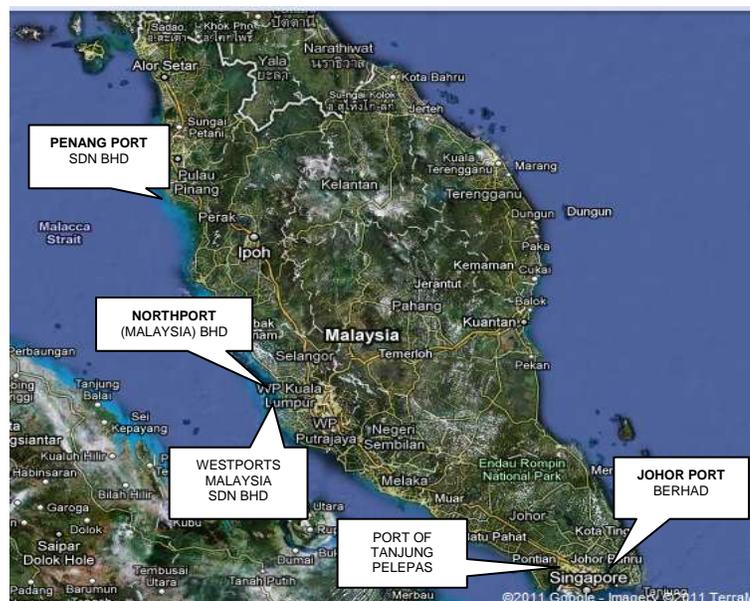
Figure 1: Map showing locations of major ports hinterlands which comprising industrial areas in Peninsular Malaysia where sample were collected.

From the 120 distributed sets of questionnaires, 70 sets were returned and were used for data analysing. Self-administrated questionnaire and in-depth interview were used as data instrument collection with two approaches using SERVQUAL and SERVPERF to measure the quality of haulage services. A factor analysis and a principal component analysis were conducted in order to assess the degree of significant determinants and the underlying weakness in the service quality of Malaysian haulage industry. The Gap Model of Service Quality adapted from Parasuraman *et al, (*1985) was utilized to identify and correct gaps between expected levels and actual levels of service quality rendered by the hauliers as shown in the figure 2 belows:
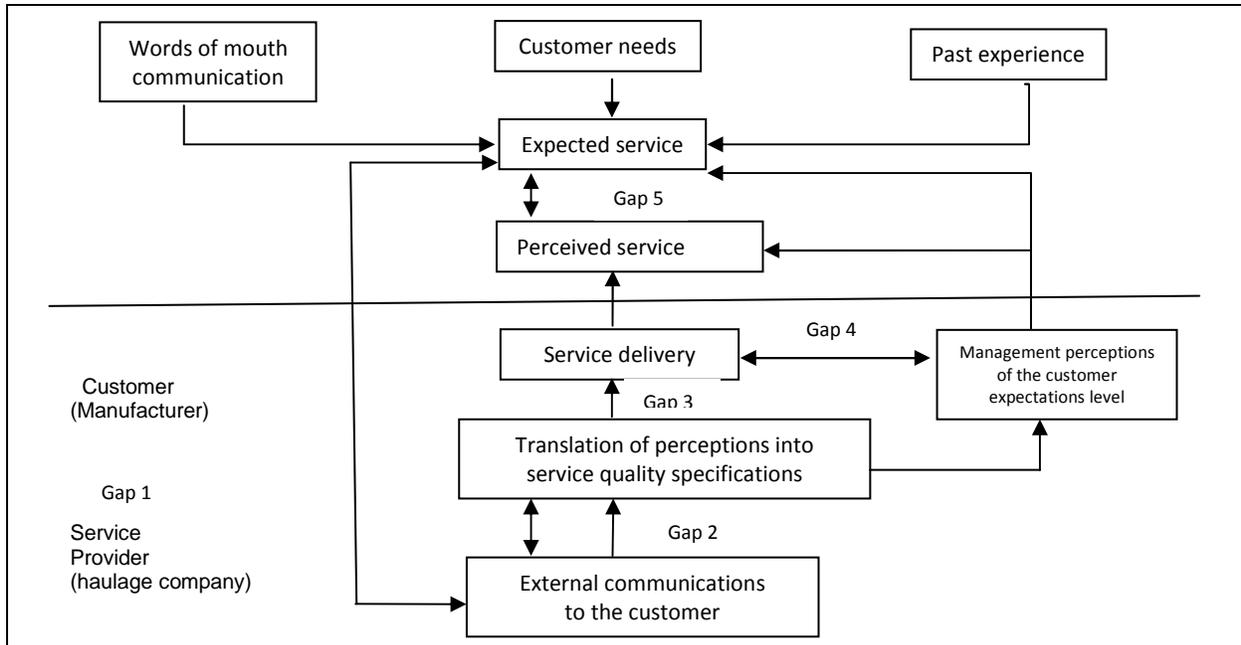

Figure 2: Gap Model of Service Quality adapted from Parasuraman *et al, (*1985).

## 5. Preliminary Discussion and Finding

Demographic Characteristics of Respondents

The respondents of this study were clustered into ten manufacturers sectors as shown in the graph 1.

Graph 1: Respondents' Cluster

The electrical goods manufacturers comprising 40% as this sector is the key players in manufacturing industry in Malaysia and followed by furniture/wood base manufacturers and other sectors 15% from the total respondents.
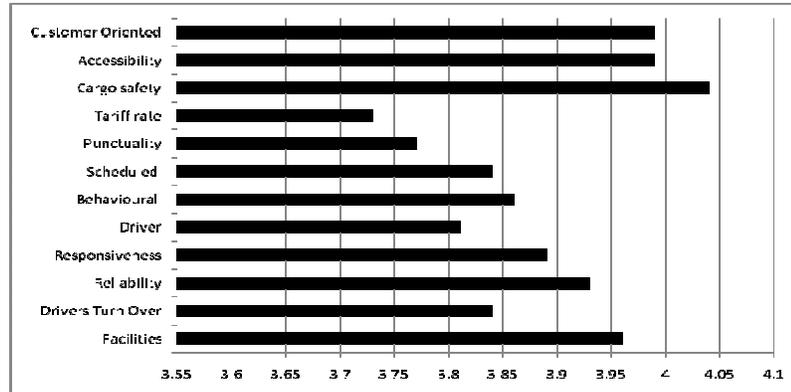
Graph 2: Customer Expectation Level on Haulage Service Quality

Expectation Gap and Critical Service Quality

The respondents ranking of customer expectations (gap) demonstrate that cargo safety (Mean=4.04, SD= 0.770) that delivering the goods without damage as the most important determinants in engaging a haulage services. Other important determinants of critical service quality were accessibility in communication and information (Mean=3.99, SD=0.843). Followed by customer oriented (Mean=3.99, SD=0.860), and the lowest mean was tariff rate (Mean=3.73, SD=0.977) due to standardize gazetted tariff rate in 1988 of Malaysian haulage services as shown in the graph 2.

The Reliability Analysis of the Instruments

A reliability analysis was conducted to determine the reliability measures for the constructed items. *Cronbach Alpha* Statistics was applied to test whether the factors of research variables were consistence and reliable. Result of *Cronbach Alpha* as shown in table 4, indicated that the reliability of 0.9551 value for the constructed items which is considered highly adequate for satisfactory level of reliability since its exceeding the the maximum value of 0.6 as recommended by Nunally (1978)

Table 4: Value of Cronbach's Alpha

Number of items	Cronbach's Alpha
12	0.9551

Determinants of service Quality in Container Haulage Business

Principal component factor analysis with varimax rotation was employed in order to identify the significant determinants of haulage container transportation service quality. The result indicated that Bartlett's Test of Sphericity was significant (Chi-square = 430.475,p-value < 0.000) and the Kaiser-Meyer-Olkin (KMO) measure of sampling respondents adequacy was 0.880, which is above 0.5.This KMO value considered highly significant since the value exceeded the recommended value of 0.6(Kaiser,1974).The two measures (KMO and Bartlett's) suggested that the data is appropriate to proceed with a factor analysis as shown in table 1.

Table 1: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.880
Bartlett's Test of Sphericity	Approx. Chi-Square	430.475
	df	66
	Sig.	.000

There are 12 determinants of customer expectations on service quality which were factorized into two significant factors (i.e. eigenvalues exceeding one) merged from the factor analysis. Table 2 and table 3 show these two factors accounted for approximately 60% of total variance and thus could be considered adequately represent the 12 service quality determinants of haulage services.

Table 2: Total Variance Explained for Customer Expectation Item

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
FACILITY	6.124	51.037	51.037	6.124	51.037	51.037	3.740	31.167	31.167
DRIVERS TURN OVER	1.046	8.717	59.754	1.046	8.717	59.754	3.430	28.587	59.754
RELIABILITY	.924	7.699	67.454						
RESPONSIVENESS	.815	6.795	74.249						
DRIVER COMPETENCY	.633	5.272	79.520						
BEHAVIOURAL OF MANAGEMENT	.532	4.431	83.951						
SCHEDULE PLANNING IN DELIVERY	.492	4.097	88.048						
PUNCTUALITY	.421	3.507	91.555						
TARIFF RATE	.339	2.824	94.379						
CARGO SAFETY	.265	2.208	96.586						
ACCESSIBILITY AND COMMUNICATION	.243	2.027	98.614						
CUSTOMER ORIENTED	.166	1.386	100.000						

Table 3: The principal components analysis for customer expectation determinants of the haulage industry

Determinants	Factor 1	Factor 2
Facility	0.660	
Drivers turn over	0.782	
Reliability	0.868	
Punctuality	0.647	
Tariff rate	0.622	
Customer oriented		0.848
Schedule planning in delivery		0.698
Cargo Safety		0.673
Accessibility and communication		0.812
Eigenvalues	0.868	0.848
Percentage Variance	51.037	8.717

The results from table 3, shows that factor loading which have value higher than 0.6 were selected. Factor 1 (Facility & Value-added services) comprising 5 items which are higher than 0.6 that is facility, drivers turn over, reliability, punctuality, tariff rate (pricing). Factor 2 (Customize service) have 4 items higher than 0.6 that is customer oriented, accessibility & communication, schedule planning in delivery and cargo safety (without damage).

The most significant dimensions and key contributor to service quality of haulage provider was reliability (0.868) which accounted for 51.04% of the total variance while customer oriented as the second factor accounted for 8.72% and customer oriented (0.848) which underlies the structure weakness of the haulage industry in Malaysia.
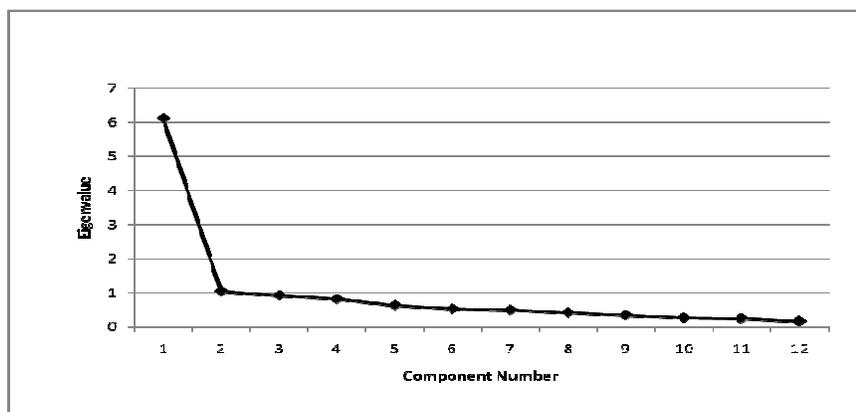
Graph 3: Scree Plot of factor analysis

In addition, scree plot and the eigenvalue greater than one criterion (Churchill, 1991) were used to determine the number of factors. A plot of the size eigenvalues against the number of components in their order of extraction is shown in graph 3.

The above scree plot shows that there were two significant factors extracted from the factor analysis. These factors were labelled as follows:

Factor 1*: Facility & Value-added Services* comprising of five items that is facility with adequate fleet, well maintained and according to ROV specification. Another item was low drivers turnover that is vital as there were a shortage of skills, experience and competent drivers in the haulage industry. Even though, the tariff rate (pricing) was gazette by the government since 1988 but price flexibility is sought by the customer in maintaining the customer loyalty as well as the hauliers sustainability in their niche business. The most highly correlated service quality determinants in this factor were reliability and punctuality which were the pivotal role in the service delivery business, subsequently contributing to the efficiency of overall supply chain in the economic activities of a country.

Factor 2: *Customize services* consisted of four items which were highly and structurally correlated. Namely customer oriented which was the competitive edge in the business-to-customer setting. In addition, accessibility & communication in handle problems for customers as well as ability for the haulage management in delivering the container according to scheduled planning particularly during the peak seasons. This reflected the inland transportation supply chain predominantly the haulage industry which was a crucial service activity in the economy of a country. If a carrier can control door-to-door cargo movements in highly efficient services in cargo safety and without cargo damage, then the customers may differentiated their services from those offered by other haulage services providers from the rest in the industry.

6. Conclusion

The haulage industry is a dynamic service of business-to-customer setting which has to be responsive to changes, issues and challenges according to various constraints and increasing demand by the customers. Major emphasis is now placed on the significance of communication and information as well as physical movement of cargo deliveries in the economy activities of a country. These determinants are corresponding with the six strategic thrusts formulated under the Third Industrial Master Plan IIMP3) to create an efficient and competitive haulage industry to support the country's industrialization efforts.

Hence, a valid and reliable of service quality determinant has been constructed in order to measure the most significant determinants and key contributor to inland container haulage services. This study is conducted to investigate on service quality rendered by haulage provider and derived the critical service quality determinants to haulage industry in Malaysia that one of the key factors, in contributing to success or failure of business-to-customer setting.

Number of implications can be drawn from this study where as far as the managerial implications two significant factors were considered as facility & value-added services and customized services. Reliability and punctuality were the most highly correlated determinants and the key contributors to the overall sustainability of haulage services industry in Malaysia. Therefore, consented effort to further enhance these critical determinants of service quality seems to be the significant factor for business-to-customer setting in order to increase loyalty of customer base.

On the other hand, the study revealed that with customized services those who can control the service quality delivered to the customer (all personnel in the organization) must have the ability to customized their approach to any unique situation, could reduced the degree of 'critical gap' perceived by their customers which underlying the structural weakness that engulfing the service quality of Malaysian Haulage Industry. The foremost conclusion from this study is the ability of reducing perceived critical gap in service quality of services provider could significantly generate to sustainable competitive advantage either locally or globally.

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