Abstract: In the courier service industry, service quality is among the most crucial determinants for customer satisfaction. This paper applies the Logistic Service Quality (LSQ) model, using variables which include timeliness, condition of order, quality of information, and quality of personnel in determining the most effective dimensions in providing sound service quality to achieve customer satisfaction. The LSQ model was tested for its validity in courier services industry in Bulgaria. Multiple regression analyses indicated that the condition of order has the greatest impact on the level of customer satisfaction.

Key words: Courier services, Logistic Service Quality, Customer satisfaction.

I. Introduction

In the recent decades, the courier service sector worldwide underwent radical changes, to become a significant factor in the exchange of goods and communications in today’s era of global connectivity and mass Internet penetration. Both the supply and demand are transformed. Traditional courier services are increasingly affected by competitive pressure of Infor-
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Information and Communication Technologies (ICT) and the process of globalization. Apart from getting adapted to the rapidly changing environment, courier companies strive to become a driving force for change by offering more specific and diverse services. This gives unprecedented possibilities to the customers to express their specific needs and to request an adequate response from the companies.

For the modern courier providers customer satisfaction becomes a key success factor. The knowledge of current levels of satisfaction and, in particular, the key determinants of satisfaction allow the courier companies to focus and build upon key areas that lead to highly satisfied customers.

Measuring the level of customer satisfaction enables the management of courier companies to identify the factors that cause leaving of customers and to reduce their influence. Information on satisfaction helps to detect potential market opportunities and to provide competitive advantages. Customer satisfaction has many positive consequences for courier business: increased sales, realization of follow-purchases, better corporate image, reduction of customer complaints, lower marketing costs, reduction of business risk, lower price elasticity, et al. Given these positive effects, setting satisfaction as a primary goal of the courier providers is understandable and logical.

Courier service industry in Bulgaria is beginning to experience mounting competition since joining the European Union in 2007. So far there is a lack of information to pinpoint country specific areas of customer satisfaction amongst courier service providers.

Hence, this paper aims to clarify the mechanism of formation of customer satisfaction and to determine the role of Logistic service quality in providing courier services.

To achieve this goal, the following tasks have been set:

1. to identify the service quality dimensions that significantly influence customer satisfaction level in courier service industry;

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To achieve this goal, the following tasks have been set:

1. to identify the service quality dimensions that significantly influence customer satisfaction level in courier service industry;
(2) to propose a methodology for studying the relationship between the level of consumer satisfaction and logistic service quality dimensions;

(3) to suggest possible ways to improve the level of customer satisfaction in the courier service industry.

II. Methodology

The methodology of the study is based on modern theory and methodology of the research presented in (Bienstock et al., 1997; Bingguang, 2002; Rafid & Jaafar, 2006; 2007; Saura et al., 2008; Xu & Cao, 2008; Huang et al., 2009; Mansor & Razali, 2010; Kamble et al. 2010; Ho et al., 2012; Nedyalkov, 2012).

Individual customers of courier services in Bulgaria are the main units of the study.

In order to address the core of the research problem, level of satisfaction with courier services in Bulgaria, the information from the customer perspectives plays an important role.

Quantitative data collection methods were used to collect all the necessary data needed for answering the core research questions and problems of the research. Therefore, a structured online questionnaire, administered by Survey Gizmo software was conducted.

Due to the inability to create a sample that meets the requirements for a complete random selection we used two types of non-random sample - volunteers who agree to participate and snowball sample.

According to the National Statistics Institute at the beginning of July 2014 the population of Bulgaria is N=6,924,716 people. Using the apparatus of mathematical statistics at significance level α=0,05 and margin of error ε=0,05 minimum sample size determined to be 384 (Creative Research System, 2012). The number of returned and valid questionnaires is 423.

Analysis of the data includes Descriptive Statistics, Multiple Regression Analysis, calculation of Multiple Correlation Coefficient, ANOVA F-statistic for model adequacy testing.
III. Factors affecting customer satisfaction in the courier service industry in Bulgaria

The customer satisfaction theory and its research have been in the focus of researchers over the past three decades. The positioning of the concept in the core of research activities is reflected by the consideration that profits are generated through the satisfaction of consumer needs and wants (Kandampully & Suhartanto, 2003; Chan et al., 2010).

Customer satisfaction is very important in today’s business world, the ability of a service provider to create a high degree of satisfaction is crucial for service differentiation and developing strong relationship with customers. The customer not only plays a role in a co-creation of value, but shares the service experience through which that value is created with the provider (England, 2011; Kandampully, 2012).

The foundations of customer satisfaction may be viewed from two widely accepted perspectives:

- customer satisfaction is defined as the perceived discrepancy between pre-purchase expectations and post purchase evaluation of the service experience (Samanta, 2014; Parasuraman, 2004);
- customer satisfaction as an emotional response to an evaluation process (Westbrook & Oliver, 1991; Mladenova, 2000; Oliver, 2010).

Regarding the relationship between customer satisfaction and service quality there are two opposing views:

- satisfaction is seen as an antecedent of service quality, when the last one is seen as a global perception (Bitner, 1990; Bolton & Drew, 1991; Woodruff, 1997);
- service quality has also been seen as a cause of customer satisfaction (Clemes et al., 2007; Negi, 2009).

A review of the existing literature indicates a wide variance in the definitions of satisfaction. The lack of a consensus definition limits the contribution of consumer satisfaction research. Without a uniform definition of satisfaction, researchers are un-
able to select an appropriate definition for a given context, develop valid measures of satisfaction, and/or compare and interpret empirical results. Since in the literature there is still no unified concept of customer satisfaction, it is important to explain how satisfaction in the courier services industry should be understood. Satisfaction is customer response resulting from comparing the perceived performance or outcome in relation to the expectation. Customer satisfaction is an evaluative process, it is a judgment of service feature, or service itself, the level of pleasurable consumption it provides - related fulfillment, including levels of under- or over-fulfillment. The authors suppose that the quality of courier services leads to a higher level of customer satisfaction.

Due to the key role of logistics for the competitive development of courier providers, in the present study the customer satisfaction of courier services is evaluated by applying the Logistic Service Quality model.

According to the applied model, service quality is classified using four dimensions, namely: *timeliness, condition of order, quality of information and quality of personnel* (also called determinates) (Novack et al., 1994; Shet et al., 2006; Rafid & Jaafar, 2007; Rutner & Langley, 2000; Stank et al., 2003; Shet et al., 2006).

Many authors (Ho et al. 2012; Mentzer et al., 2001; Xu & Cao, 2008) recognized the importance of LSQ and its impact on the customer satisfaction in the courier service industry.

A number of empirical studies support this finding by establishing the positive effect of LSQ on the level of customer satisfaction and customer loyalty (Daugherty et al., 1998; Mentzer et al., 2001; Stank et al., 2003; Vazquez-Casielles et al., 2002). Furthermore, LSQ has also been linked to market share through customer satisfaction and loyalty. Most of the studies focusing on LSQ were examined using the operational parameters whereas the customer perspective got relatively little recognition.

Тъй като в литературата все още не съществува единна концепция за удовлетвореността на потребителите, е важно да се даде обяснение, как трябва да се разбира удовлетвореността на потребителите в сферата на куриерските услуги. Удовлетвореността е реакция на потребителя на изпълнението на обслужващо тя свързване, което получава. Това е преценка за характеристиките на услугата, за степента на предоставяне на приятно ниво на потребление, за степента на превъзходство или изоставане в нивото на изпълнението. Авторите захвърлят тезата, че качеството на куриерските услуги води до повишаване на удовлетвореността на потребителите.

Предвид спецификата на куриерските услуги и ключовата роля на логистиката за конкурентоспособното развитие на куриерските оператори, в настоящата разработка за оценка на удовлетвореността от предоставянето на куриерските услуги е приложен моделът “Logistic Service Quality”.

Моделът използва следните показатели за оценка на качеството на услугите: навременност на доставката, условия на доставката, качество на предоставяна информацията, качество на обслужващия персонал (Novack et al., 1994; Rafid & Jaafar, 2007; Rutner & Langley, 2000; Stank et al., 2003; Shet et al., 2006).

Редица автори (Ho et al. 2012; Mentzer et al., 2001; Xu & Cao, 2008) признават важността и значението на LSQ за потребителската удовлетвореност в сферата на куриерските услуги. В потвърждение на тази теза редица емпирични проучвания доказват позитивния ефект на LSQ върху нивото на потребителската удовлетвореност и лоялността на клиентите (Daugherty et al., 1998; Mentzer et al., 2001; Stank et al., 2003; Vazquez-Casielles et al., 2002). Нещо повече същите автори обвързват LSQ с пазарния дял на операторите посредством потребителската удовлетвореност и лоялност. Повечето от проучванията, свързани с LSQ, изучават преди всичко операционните параметри, в същото време на гледната точка на потребителите не се отдава нужното значение.

Навременността на доставката е свързана с изпълнение на поетите от страна на куриерския оператор ангажименти по отношение спазването на предвари-
Timeliness of delivery is associated with fulfillment of commitments by the courier operator relating to compliance with previously agreed terms of delivery. It has been found that customer satisfaction can be further enhanced, given the availability of flexible timeliness, based on demand (Mattila & Mount, 2006; Mentzer et al., 2001).

According to Xu and Cao, this variable measures the average effectiveness and success of a courier provider once they have received a customers’ order (Xu & Cao, 2008).

The dimension condition of order includes several key aspects. On the one hand contractual conditions regarding the time, place and specific conditions of delivery that have to be met. On the other hand, condition of order reflects as well the ability to change the courier service in order to meet the requirements and needs of each individual customer. The security of shipment is also part of the dimension condition of order.

Quality of the information as a dimension in LSQ model includes: availability and easy access to information; accuracy, clarity, appropriate language and various forms of providing information; speed of delivery of information; ability to maintain communication with the client throughout the process of providing the service; maintenance of user feedback.

Quality of personnel includes: competence and speed of servicing; responsiveness; телно договорените срокове на доставка. Установено е, че удовлетвореността на потребителите се увеличава при наличие на повече вариант за избор на време на доставка, в зависимост от конкретните нужди на потребителите (Mattila & Mount, 2006; Mentzer et al., 2001). Според изследване на Xu и Cao, навременността на доставките измерва средната ефективност и успеха на куриерския оператор след получаването на заявката от потребителите (Xu & Cao, 2008).

В дименсията условия на доставката се включват няколко основни аспекти. Първо трябва да бъдат спазени договорените условия по отношение на срока, мястото и специфичните условия на доставка. В тази дименсия се включва и гарантирането на сигурността на доставките. В условията на доставката на мира израз и възможност за промяна на услугата, с цел отговаряне на изискванията и задоволяване на нуждите на всеки индивидуален клиент.

Качеството на предоставяната информация като дименсия в LSQ модела включва: наличие и лесен достъп до информация; точност, яснота, подходящ език и алтернативни формати на предоставянето й; бързина на предоставяне на информацията; възможност за поддържане на комуникация с клиента през целя процес на предоставяне на услугата; поддържане на обратна връзка с потребителите.

Качеството на обслужващия персонал включва: компетентност и бързина на обслужване; отзивчивост и желание на контактния персонал да помага на клиентите при възникнали въпроси и несъ-
willingness of the contact personnel to help clients; instilling confidence etc.

**Based on the above rationale, the following hypotheses are derived:**

**SH1:** *Timeliness* has a significant influence on the level of customer satisfaction of courier services;

**SH2:** *Condition of order* has significant influence on the level of customer satisfaction of courier services;

**SH3:** *Quality of information* has significant influence on the level of customer satisfaction of courier services;

**SH4:** *Quality of personnel* has significant influence on the level of customer satisfaction of courier services.

**IV. Results and findings**

Multiple regression model was developed to examine the effects of the above mentioned four determinants (*timeliness, condition of order, quality of information, quality of personnel*) of logistic service quality on the overall customer satisfaction.

Practical application of this model requires first to determine whether there is a statistically significant relationship between the resulting variable and the proposed set of factors.

Secondly, an adequate model should be chosen that is able to describe properly the complex relationship between the resulting variable and a set of factors behind it. The last dependence must be quantified to determine the narrowness of the relationship.

**The multiple regression model can be expressed with the following equation:**

\[ y = b_0 + b_{x_1} + b_{x_2} + \ldots + b_{x_k} \]  (1)

where \( y \) is the dependent variable;

\( x_1, x_2, \ldots, x_k \) are independent variables;

\( b_{x_1}, b_{x_2}, \ldots, b_k \) are the regression coefficients.

There are assumptions that need to be satisfied, statistical tests to determine the goodness fit of the data and accuracy of the multiple regression model. The main ones at confidential level 95% are:

**IV. Результата от изследването**

За установяване на връзката между потребителската удовлетвореност и показателите: навременност на доставката, условия на доставката, качество на предоставянето на информацията и качество на обслужващия персонал е построен многофакторен регресионен модел.

Постановката при практическото прилагане на този модел изисква първо да се установи дали между явлениято-следствие и предполагаемия набор от фактори съществува закономерно статистически значима връзка.

Второ, следва да се избере адекватен модел на връзката, който да е в състояние правилно да опише комплексната зависимост между резултативната променлива и серията обуславящи я фактори. Последната зависимост трябва да бъде количествено измерена, за да се определи теснотата на зависимостта между включените в модела фактори и явлениято-следствие.

**Многофакторният регресионен модел има вида:**

\[ y = b_0 + b_{x_1} + b_{x_2} + \ldots + b_{x_k} \]  (1)

където: \( x_1, x_2, \ldots, x_k \) са \( k \) на брой факторни променливи;

\( b_{x_1}, b_{x_2}, \ldots, b_k \) са регресионни коефициенти.

Регресионният модел се счита за статистически значим и пригоден за практически използване и прогнози ако удо-
The probability of the F-statistic (ANOVA Table) for the overall regression relationship has to be less than or equal to the level of significance of 0.05;

- Value of the coefficient of determination ($R^2$), and absolute value of the coefficient of multiple correlation ($R$) greater than 0.5 are considered acceptable;

- Acceptable level of multicollinearity between the independent variables (Multicollinearity statistics with SPSS - Variance Inflation Factor (VIF)<10).

As independent variables in the proposed model were used indicators: timeliness of delivery, condition of order, quality of information and quality of personnel, and as a dependent variable (or consequence) - the level of consumer satisfaction.

The result in ANOVA Table indicates that there is statistically significant relationship between customer satisfaction and dimensions as the probability of F-statistic is less than significance level (0.000<0.05).

The estimated coefficient of multiple correlation (Multiple $R=0.917$) measured the strength of the correlation between the resulting (dependent) variable and the set of factors (independent variables, called predictors) that are included in the regression model and have joint influence. Correlation results clearly show a very strong relationship between customer satisfaction and timeliness of delivery, condition of order, quality of information and quality of personnel.

$R^2$ is the coefficient of multiple determination. $R^2$ criterion represents the fraction of the sample variation of the y values that is explained by the independent variables, included in the model. The calculated value of $R^2$ is 0.841, which means that approximately 84.1% of the variation of customer satisfaction is explained by the independent variables. Therefore, selected factors significantly affect the dependable variable (customer satisfaction), which confirms the correctness of their inclusion in the model.

The calculated values of VIF indicate no significant multicollinearity, confirming the adequacy of the proposed model.
Once it was determined that the model created describes well the experimental data, the next step is to use the model for explaining the mechanism of the studied processes.

Examination of the significance of the coefficients of the equation shows that $b_0$ is outside the critical region of the null hypothesis, i.e. $b_0$ is not statistically significant. Coefficients $b_1$, $b_2$, $b_3$ and $b_4$ are in the critical region of the null hypothesis, therefore they are statistically significant.

Based on the findings, SH1 (timeliness), SH2 (condition of order), SH3 (quality of information) and SH4 (quality of personnel) are supported with Sig. of 0.000<0.05 (SH1), Sig. of 0.000<0.05 (SH2), Sig. of 0.000<0.05 (SH3) and Sig. of 0.000<0.05 (SH4) respectively, and are confirmed. The results indicate that timeliness, condition of order, quality of information and quality of personnel all have a significant impact on customer satisfaction.

### Table 1. ANOVA Table

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>285,918</td>
<td>4</td>
<td>71,480</td>
<td>550,956</td>
<td>0.000</td>
</tr>
<tr>
<td>Residual</td>
<td>54,230</td>
<td>418</td>
<td>130</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>340,148</td>
<td>422</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**ANOVA**

**Table 2. Regression results**

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>t</th>
<th>Sig.</th>
<th>Collinearity Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Constant) $b_0$</td>
<td>0.004</td>
<td>0.029</td>
<td>150</td>
<td>0.881</td>
<td></td>
</tr>
<tr>
<td>Timeliness $b_1$</td>
<td>0.210</td>
<td>0.016</td>
<td>214</td>
<td>12.791</td>
<td>0.000</td>
</tr>
<tr>
<td>Condition of Order $b_2$</td>
<td>0.413</td>
<td>0.015</td>
<td>245</td>
<td>26.976</td>
<td>0.000</td>
</tr>
<tr>
<td>Quality of Information $b_3$</td>
<td>0.233</td>
<td>0.016</td>
<td>220</td>
<td>14.018</td>
<td>0.000</td>
</tr>
<tr>
<td>Quality of Personnel $b_4$</td>
<td>0.151</td>
<td>0.013</td>
<td>170</td>
<td>11.394</td>
<td>0.000</td>
</tr>
</tbody>
</table>

**Coefficients**

**Издижнатите изследователски хипотези са потвърдени, което дава основание да се твърди, че навремеността на доставката, условията на доставката, качеството на предоставяната информация и качеството на обслужващия персонал оказват положително влияние върху ни-
dition of order, quality of information and quality of personnel have positive relationships with the level of customer satisfaction. There are statistically significant relationships between the set of independent variables and the dependent variable.

The Beta value is a measure of how strongly each predictor variable influences the resulting (dependent) variable. Thus, the higher the beta value the greater the impact of the predictor variable on the dependent variable.

It can be seen that condition of order has the highest beta at 0,445 which suggests that this variable is the strongest factor in influencing customer satisfaction of courier services.

In summary, the relationship between the dependent variable (customer satisfaction) and independent variables (timeliness, condition of order, quality of information and quality of personnel) in the courier services sector are as follows:

\[ Y = 0.214 \text{ Timeliness} + 0.445 \text{ Condition of Order} + 0.220 \text{ Quality of Information} + 0.170 \text{ Quality of Personnel} \] (2)

The main difference in the findings of this paper is that the most significant variable for achieving satisfaction among individual customers in the courier service industry is the condition of order, showing a contrast to previous findings (Mansor & Razali, 2010; Rahman, 2008; Xu & Cao, 2008) where timeliness was regarded as having the highest level of influence on customer satisfaction.

The results suggest that there has been a shift in the trend, and companies should start to recognize this.

This should draw the attention of the registered courier providers in the country to potential sources of competitive advantages, as follows: providing customizing services through dynamic response to changing market conditions; investments in information and communication technologies; offering a wide range of services; investment in training and qualification of the personnel.

Consumer evaluation of courier providers
with the largest market share and the national postal operator Bulgarian Posts in four dimensions is presented in Table 3.

Table 3. Evaluation of the courier providers by selected criteria

<table>
<thead>
<tr>
<th></th>
<th>Ecot Express</th>
<th>DHL Ди Ейч Ел</th>
<th>Speedy Спиди</th>
<th>In Time Ин Тайм</th>
<th>Bulgarian Posts Български пощи</th>
<th>Others Други</th>
</tr>
</thead>
<tbody>
<tr>
<td>Timeliness Навременност на доставката</td>
<td>4,264</td>
<td>4,278</td>
<td>4,049</td>
<td>4,000</td>
<td>3,429</td>
<td>3,590</td>
</tr>
<tr>
<td>Quality of Information Качество на предоставянаята информация</td>
<td>4,069</td>
<td>3,965</td>
<td>4,000</td>
<td>3,333</td>
<td>3,143</td>
<td>3,900</td>
</tr>
<tr>
<td>Condition of Order Условия на доставката</td>
<td>3,900</td>
<td>4,417</td>
<td>4,000</td>
<td>3,500</td>
<td>3,640</td>
<td>4,078</td>
</tr>
<tr>
<td>Quality of Personnel Качество на персонала</td>
<td>3,935</td>
<td>4,147</td>
<td>4,167</td>
<td>2,786</td>
<td>4,078</td>
<td></td>
</tr>
</tbody>
</table>

The results show that clients of providers with foreign participation, namely DHL and In Time (Authorized Service Contractor for UPS in Bulgaria) registered the highest level of satisfaction regarding the condition of order and quality of personnel. This shows that to be competitive in the market, Bulgarian courier operators have to rely on individual approach that ensures service flexibility according to customers’ requirements and compliance commitments for all aspects of delivery. Bulgarian courier operators registered a relative advantage in terms of quality of information.

National postal operator Bulgarian Posts has the lowest values of all determinants. This could be a reason that its market share has declined rapidly in recent years.

V. Discussions and Conclusions:

This study aimed to examine the aspects of service quality that contribute to customer satisfaction in the courier service industry in Bulgaria. The main difference in the findings of this paper is that the most significant variable for achieving satisfaction among customers in the courier service is the condition of order.

The implication suggests that there has been a shift in the trend, and courier companies should start to recognize it. Quality of information was also found to have a

От данните в нея прави впечатление, че клиентите на операторите с чуждестранно участие, а именно „Ди Ейч Ел” и „Ин Тайм” (официален представител на UPS за България) регистрират най-висока степен на удовлетвореност по отношение на условията на доставката и качеството на обслужващия персонал. Това показва, че за да бъдат конкурентоспособни на пазара българските куриерски оператори трябва да заложат на индивидуалния подход при обслужването на клиентите, гарантирайки моделиране на услугата според изискванията на клиентите и спазване на поетите договорки по отношение на всички аспекти на доставката. Българските куриерски оператори регистрират относително преимущество по отношение на качеството на предоставянаята информация.

Националният пощенски оператор „Български пощи” има най-ниски стойности на всички показатели. Не случайно неговият пазарен дял намаля главоломно през последните години.

V. Заключение

Целта на настоящото проучване е да се изучат аспекти на качеството на услугите, които допринасят за повишаване на потребителската удовлетвореност в сферата на куриерските услуги в България. Установено е, че най-значимата променлива за постигане на удовлетвореност сред индивидуалните потреби-
strong influence on customer satisfaction. Based on this study, the following conclusions can be formulated:

(1) The main factors influencing the level of consumer satisfaction in the courier service industry in Bulgaria are clarified;

(2) Based on regression analysis the applicability of the LSQ model in the field of courier services was confirmed. It has been shown that satisfaction depends significantly on the quality of the activities in the supply chain;

(3) By testing statistical hypotheses it has been shown that there is a statistically significant relationship between indicators such as timeliness, quality of information, condition of order, quality of personnel and the level of customer satisfaction;

(4) The particular level of satisfaction achieved in each of the four dimensions suggests the direction in which the courier providers have to work.

The results provide an explicit answer to the question which the most important factors that determine the quality of courier services are. The factors displayed should be considered as a competitive “weapon”, which leads to an increased level of customer satisfaction of the individual users of courier services in Bulgaria. This should draw the attention of the registered courier providers to these potential sources of competitive advantages.
Reference/Литература


