DELIVERY PROCESS AS A SUPPLY CHAIN MENAGEMENT COMPONENT, AND INDIVIDUAL E-COMMERCE CLIENTS SATISFACTION. POLISH EXAMPLE.

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Abstract

The purpose of this paper is to identify the features of delivery quality and their impact on the e-commerce clients' satisfaction level. As a research objects, individual clients from Poland were selected. Based on literature research and expert consultations, a research model and survey were implemented. To assess the research questions posed, a survey was posted on the internet platform. The arithmetic mean and correlation matrices were used to analyse the collected data. The research results indicated the selection of deliveries features, which affect the satisfaction, and differences in its perception by women and men. The genuine character of the research is a more accurate understanding of the relationship between the quality of delivery and satisfaction depending on the e-commerce markets customers' gender.

Keywords: Supply chain management, clients satisfaction, delivery process

1. INTRODUCTION

The concept of satisfaction is defined diversely in many works. Kotler [1] defines as a state perceived by an individual and related to the comparison of experienced product features and individual expectations regarding these features. In turn, Hill and Alexander [2] share the opinion that the buyer's satisfaction is a reflection of the extent to which the product sold by a given company meets the respective requirements. However, according to Zhang [3]"…consider customer satisfaction as the degree to which customers perceive that products and services are worth more than they paid." The level of customer satisfaction may be the result of a price -demand relation or price - expected product or service quality [4]. Satisfaction of price is also providing value for the customer [5]. It is clear that the perception of quality in the price affects the satisfaction or dissatisfaction of the customer.

If we take into account the e-commerce market, then the matter is more complicated, because online shopping has two impacts on intangibility. First, it increases the intangibility of physically tangible products. Many consumers are resistant to e-commerce because of its inability to provide physical cues.[6] Second, though the internet can tangibilize the intangible [7] by providing information [8]. That is because the website cannot be touched, felt or smelled, but only see [9].

Therefore, the price-quality relationship must give the customer a greater sense of satisfaction. In this context, the concept of supply chain management should be analysed differently.

Supply chains (SC) are concepts designed to create business relationships focused on achieving one common goal, that is, providing value to the customer. Such a goal requires cooperation of many enterprises in various fields, branches, profiles and structures. By making use of a webservice composition middleware, a virtual enterprise broker, in response to a complex consumer need, can quickly generate a more value added composite service or product [10]. The problem, however, consists in the smooth flow of information, goods, services, money, which requires the coordination of many activities within various entities. Coordination of these activities is considered a critical factor in maintaining fluency in the SC process [11,12]. In order to preserve the coordination of these activities, it is necessary to cooperate with partners within the supply chain

network, and thus share not only information or money, but also risks [13]. The subject of cooperation within SC is often discussed in the respective literature. Lionel [14], Villenaet [15] defined social capital, that is, strength and shared relations as a factor influencing cooperation within the supply chain. Other researchers emphasised the subject of honesty and fairness in contacts between network participants [e.g.16]. Still, other researchers are considering using IT systems in coordinating activities and planning and analysing risk in the chain [17]. Wu and Chiu [18], on the other hand, came to the conclusion that managers need to fully prepare for a cordial atmosphere among partners in terms of their concerns about communication channels, relational stability, mutual rewards, and fair policies. Collaborative relationships are well founded on the responses from the positive beliefs and behaviors of these issues. Next, advances in IT are a further investment to make specific social resources feasible in implementing collaborative behaviors. In general, managers should be first in a preparation to reach consensuses on these social resources and further nurture capabilities of IT use in an inter-organizational boundary. These include building basic IT infrastructure for communication purpose and various inter-firm and intra-firm applications for use.

Close cooperation within the supply chain allows one to provide the customer with the right product or service at the right time and in the right place, but it should also give him or her satisfaction with the purchase. The modern client demands not only meeting his/her expressed needs, but also unspoken requirements and expectations are much more important to him/her, which is a challenge for supply chain management.

The purpose of the paper is to identify the attributes of the delivery quality and their impact on the satisfaction of e-commerce clients. Previous research on shopping behaviour on the internet has indicated [19] that delivery is a critical factor that determines online purchase (67 % of respondents indicated that lower delivery costs will affect more frequent purchases, and 40 % of respondents indicated that the long waiting period is not favourable for shopping), therefore, the quality of delivery has become the object of empirical research.

The following sub-questions were assigned to this objective:

- How far does the delivery affect the level of satisfaction with purchases of e-commerce clients?
- What delivery time is accepted by online stores customers?

2. RESEARCH METHODOLOGY

The research was conducted on a group of 23 internet users between October - November 2018, 21 customers of the e-commerce market were included, which was 93.1 % of the surveyed. The data was collected in the form of a survey carried out on the e-learning website. Each participant of the study was asked to answer the survey questions. The research group consisted of women (60.9 %) aged 21 to 24 (65.2 %), who most often acquired clothes and shoes (74.1 %), books and music (33 %), and various goods as needed (33 %). In the research group, none of participants declared buying food. A significant group were young people, so the declared amount of annual expenses did not exceed PLN 1,000 (excluding bills and fees).

The survey was used to determine satisfaction levels concerning time invested in waiting for delivery, to assess the quality of services related to the delivery process, and to identify factors that affect the lack of satisfaction with purchases. The study was based on a five-point Likert scale and these data were treated as reflective features.

Because the collected data came from 23 participants of the study, it was checked whether the respondents had any undesirable convergence between answers and questions. For that purpose, Cohen's kappa coefficient was used, which was determined for all 5 pairs of observations occurring in the scope of a given respondent. The average value was 0.138, and the average value for all respondents did not exceed 0.061. This indicates a low convergence of these answers.

3. DELIVERY QUALITIES AFFECTING CUSTOMER SATISFACTION

Based on a brainstorming, four delivery attributes influencing satisfaction were selected and then subjected to examination (**Table 1**). The distribution of attributes related to delivery was divided on the basis of gender, as studies, among others Cebula [20], Jurowczyk [21], indicate significant differences in the shopping satisfaction of both men and women.

Table 1 Arithmetic mean of the satisfaction level

Arithmetic mean		Delivery cost	The ability to monitor the delivery of the product directly from the moment of registering the purchase	Delivery place	Delivery time	Easy return rejected of goods
	women	4.25	4.00	4.17	4.33	4.33
	men	3.88	3.38	4.13	4.75	4.50

The delivery directly affects the level of customer satisfaction in the e-commerce market, and selected delivery features have been chosen properly, which shows average satisfaction weights from 3.38 to 4.75 on a five-point scale. In terms of delivery features analysis, it should be noted that men and women declare different expectations and preferences. For both women and men the most important feature is the delivery time and easy return of a rejected product. This information is important for the managers of online shops, because it is necessary to take steps to ensure a convenient time of receipt of the parcel, and allow immediate return of the goods.

The cost of delivery, as an very important attribute of shopping satisfaction has failed to be confirmed. The study shows that women pay more attention to this factor (third place among women -4.25 points). However, men pay more attention to the place of delivery (4.13 points) than to the cost (3.88 points). Perceiving delivery through the cost relation is only one of the determinants of the satisfaction. Customers expect rather the option of choosing the right pickup time, and monitoring delivery in this attribute group is in the last place.

In order to get a better look at which factors are related to each other, a data analysis was carried out, which determined the correlation between the level of satisfaction between selected factors with the division of groups with respect to gender. The Statistica program was used for the research. The analysis of the correlation of individual factors affecting the satisfaction level was carried out with the probability of I error type at the 0.05 level of significance. The results of the correlation matrix are presented in **Tables 2.**

The correlation analysis gave the possibilty to explain some phenomena. The ability to monitor delivery is strongly correlated with the place of delivery (0.92) and with ease of return (0.77). Men, as individual clients, have the ability to control the flow of goods in the chain system. The more important the delivery time is for the customer, the more important are the monitoring activities of the parcel. The same happens when the customer is more interested in the return, then he also pays attention to the possibility of monitoring. The monitoring the product delivery is strongly correlated with the delivery time (0.579). This situation is typical for a modern customer who has limited time and thus may have difficulties with receiving the parcels. The authors believe that these features of satisfaction should be particularly taken into account in cooperation with courier companies, because the couriers 'working time coincides with the time of their clients' work, as the latter may have a problem with receiving the parcel.

Another interesting issue is goods return, which is negatively correlated with the cost, place and time of delivery. Considering this phenomenon, we can assume that women have demonstrated a certain reasonableness, since easy return of goods is an important factor affecting the satisfaction of women (**Table1**),

so place, time and even costs related to the collection of goods are less important for them. This is valuable information for e-commerce entrepreneurs, because it proves that the possibility of easy return will allow for greater flexibility of time and place of delivery, and even related costs, without affecting the level of satisfaction.

Table 2 Correlation matrix for men and women.

Variables		Correlations (men) Marked correlation coefficients are significant from p < .05 N = 8 (Lack of data was removed by accident) Correlations (women) Marked correlation coefficients are significant from p < .05 N = 13 (Lack of data was removed by accident)						
		Mean	**Standards deviation**	**Delivery cost**	**The ability to monitor the delivery of the product directly from the moment of registering the purchase**	**Delivery place**	**Delivery time**	**Easy return rejected of goods**
Delivery cost	*men*	3.875	0.835	1.000	0.683	0.641	0.647	0.340
	women	4.231	0,.832	1.000	0.000	0.060	-0.147	-0.460
The ability to monitor the delivery of the product directly from the moment of registering the purchase	*men*	3.375	1.598	0.683	1.000	0.924	0.531	0.769
	women	4.000	0913	0.000	1.000	0.305	0.579	0.185
Delivery place	*men*	4.125	0.835	0.641	0.924	1.000	0.462	0.566
	women	4.154	0.899	0.060	0.305	1.000	0.498	-0.253
Delivery time	*men*	4.750	0.463	0,.647	0.531	0.462	1.000	0.000
	women	4.308	0.630	-0.147	0.579	0.498	1.000	-0.052
Easy return rejected of goods	*men*	4.500	0.756	0.340	0.769	0.566	0.000	1.000
	women	3.846	0.987	-0.460	0.185	-0.253	-0.052	1.000

To make it easier to increase flexibility, it is necessary to conduct research on waiting period extent for the product, acceptable for an individual e-commerce customer. For this purpose, a detailed analysis of the delivery time acceptable for the customer (**Figure 1**) was made.

The analysis of the acceptable waiting time for a shipment allows us to draw several conclusions. First of all, women are more impatient customers, that is, they experience shopping satisfaction when they do not have to wait long for an ordered goods. As many as 31 % of women declared that the maximum time in which they

are able to accept is to receive an order up to 3 days. But also 23 % of women surveyed declared the possibility to accept the order if delivered within 14 days.

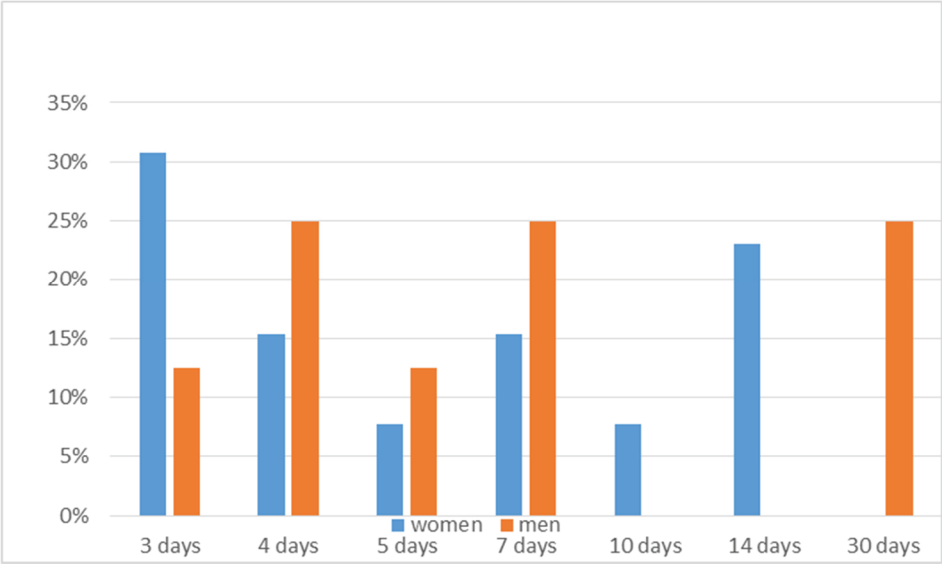

Figure 1 E-commerce clients acceptable waiting period for the goods delivery.

However, men are able to wait up to 30 days (this time 25 % of them accepted it), but 13 % also declared that waiting time up to 3 days is acceptable.

Secondly, a group of respondents, both men (75 %) and women (69 %), think that the time up to 7 days of waiting for the order is optimal. Summarizing, in the group of individual customers surveyed, delivery time is an important feature of delivery, however the acceptability of this time varies. Men can wait up to 30 days, women up to 14 days. Such conclusions may affect the managers handling the supply chain to match their offer individually, depending on the client's gender.

4. CONCLUSION

Supply chain management is a tool that directly affects the satisfaction on the e-commerce market, but also the purchase itself. The e-commerce market is characterized by a high level of intangibility, which forces entities acting on to improve the quality of sales, so that the customer felt satisfaction with the selection of the sales channel. Delivery is a factor that is a challenge for the entire supply chain. The individual customer is particularly susceptible to delivery-related disturbances, which is why it is important to learn the features of delivery, which have a particular impact on the level of satisfaction of individual customers. In the conducted study, particular attention was paid to the separateness of the perceived level of satisfaction by women and men, and thus separate adjustment of determinants of delivery to both sexes, so that it would be satisfactory for them.

The paper attempts to identify factors that distinguish gender identity and are important from the point of view of supply chain management e-commerce. It becomes very obvious that this subject is a huge field for further scientific research related to, among other things, a different attitude to the product, ecology, or responsibility and management.

This work is exploratory and aims to draw attention to fixed delivery attributes. The relatively small size of the research sample does not allow generalization of results. Future research should be based on a larger sample and, in addition, increase the number of features describing the level of satisfaction and apply multi-indicator latent variables.

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