POSSIBLE APPLICATIONS OF INSTRUMENTS OF MEASUREMENT OF THE CUSTOMER VALUE IN THE OPERATIONS OF LOGISTICS COMPANIES

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ABSTRACT. Background: The growing popularity in recent years of marketing concepts of putting clients in the centre of the interest of companies as well as easy access to data related to customers’ behaviours led to the increase of the importance of such concepts as the profitability and the value of the customer. But the customer value in not an unequivocal concept. It can be defined and measured individually depending on the needs of a company, an industry character, objectives or a time horizon.

Methods: The following, most often used, methods for measuring customer value were selected, described and analyzed from the point of view of their usefulness: different types of the portfolio method (e.g. two-steps and three-steps one, nine-field matrix, etc), multidimensional analysis of customers, analysis of the rentability of customers, model PCV, ABC method, RFM method and CLV indicator.

Results: The advantages and disadvantages of each of analyzed methods were presented and evaluated. The possible use of each of the methods was presented and discussed. In the sector of logistics companies, the measurement of the customer value can be an effective tool in managing the customer relationships and in increasing their profitability. Since there is no only one universal way of measuring the customer value, which is appropriate for every selected industry branch, the choice of a particular method depends on many factors, such as a business profile or number of clients served by a company.

Conclusions: The aim of the identification of key customers is to facilitate the optimal allocation of resources of the company. Not all customers are equally important for the company, and the company is not able and should not try to acquire and satisfy needs of each customer. It should be remembered, that the evaluation of the customer value in logistics companies should not be restricted to only one of discussed methods. The analysis presented in this paper indicates, that the verification of obtained results should be made simultaneously by the use of a few methods not only one of them. The logistics company can successfully use portfolio methods in the combination with such indicators like CLV, PCV or RFM. The multidimensional analysis helps the customer management and can increase the value of the whole company.

Key words: customer value, customer profitability, customer lifetime value, customer portfolio.

INTRODUCTION

The growing popularity in recent years of marketing concepts of putting clients in the centre of the interest of companies as well as easy access to data related to customers’ behaviours led to the increase of the importance of such concepts as the profitability and the value of the customer [Fader, Hardie, Lee 2005]. The companies begin to treat their customers more and more as a core element of their financial assets [Keiningham, Aksoy, Bejou 2006]. The managers are aware of the fact, that like in the case of other assets, the customer value is to be measured, maximized and managed in order to maximize the value of the company. The knowledge of the customer value and its importance for the
whole company can facilitates decision making related to investments in customer relationships. The management of measureable assets is more profitable, because it allows to make decisions based on concrete facts and data and not only on subjective opinions [Blattberg, Getz, Thomas 2001].

The customer value in not an unequivocal concept. It is often defined as the difference between the incomes and costs generated by that customer. It can be determined based on information of past or anticipated transactions [Grzegorczyk 2007]. The customer value can be defined individually depending on the needs of a company, an industry character, objectives or a time horizon. The companies calculate it both for the entire population of customers, selected segments as well as for individual units.

The measurement of the customer value should be a continuous process. It requires a comprehensive approach from the organization and must involve several steps, such as the identification of customers, their diversification from the point of view of selected criteria, interactions aimed at understanding of customer’s needs and then the continuous adjustment of the offer to its requirements and the help in generating profits, which are more and more satisfying for the company [Dobiegala-Korona 2002]. The determining of the customer value as well as the managing of it should be supported by the regularly updated databases of customers. The information used there should be collected continuously and their sources, beside CRM systems, should be additionally the market researches, information obtained during direct contacts and even complains, requests and remarks provided by the customers.

The logistics companies, which commonly use already mentioned CRM tools, can successfully use various methods of the measurement of the customer value. However, it should be noted, that there is no optimal tool to determine this value and the choice of a method should reflect the particular needs of a company, the possible access to the information as well as the external conditions occurring in the selected branch. Taking into consideration these aspects, the range of instruments was tried to be pointed out, which obviously is not the complete set of existing methods. Although, taking into account the specifics of logistics services, the proposed range seems to be the most appropriate one. The aim of this paper was to check the usefulness of selected methods of measurement of the customer value for companies of logistics branch as well as the selection of the most appropriate one among them.

THE DESCRIPTION AND THE ANALYSE OF MEASUREMENT METHODS

The first of described here methods, which are very helpful to differentiate customers in terms of their values, are so called portfolio methods. They derive directly from portfolio theories, used for making decisions connected with capital investments [Yorke, Droussiotis 1994]. The portfolio methods were used in clients’ management for the first time in the early 80s. The essence of these methods is based on two-dimensional differentiation of customers in terms of selected characteristics, which are significant for a company.

The two-steps analysis of the customer portfolio described by R.Fiocce, is one of the most common methods used among companies of the logistics branch. This method divides customers by the use of such criteria as difficulties in management of relationships with them, their importance for the company, the attractiveness of the buyer as well as the strength of the relationship binding the business partners. The three-steps analysis of Campbell and Cunnigham [1993] is another portfolio method, created to satisfy the needs of industrial markets but which could find also applications on the market of logistics services. Its first phase consists of assignment of customers to one of four groups: yesterday’s clients, today’s regular clients, today’s special clients and tomorrow’s clients. The criteria of this assignment are the sales volume and the use of strategic resources. Then, the measurement of portfolio share of each customer is made taking into account its expenditures of competitive companies. The last step is the proper portfolio analysis, focused only on key customers of the company, taking into consideration their attractiveness and the strength of the relationship.
The nine-field matrix is another method proposed by P. Schmoller [2001], which could support to determine the attractiveness of clients of logistics companies. The attractiveness of the client is also considered in this approach, but instead of the strength of the relationships between a client and a provider, the main focus is put on the bargaining position of the latter. In the process of determining of the client’s attractiveness such aspects are taken into account as the size of orders, the potential growth, the bargaining power, the share in the turnover, the loyalty and the willingness to cooperate. The length of the cooperation with a client, the customer satisfaction, the number of long-term orders or the image of the company are taken into consideration in the assessment of the position of the provider (Fig. 1). Like the previously described methods, the matrix helps to classify each client to the appropriate strategic groups. This method is clear and easy to analyze. Its drawbacks are the dependence on the selected evaluation criteria, the relativity, the stability and the focus on the mean values.

The other frequently used portfolio method is a model, where the attractiveness of the customer is considered in terms of two factors, directly connected with relations – costs and revenues generated by each customer [Kotler, Armstrong, Saunders 1999].
Despite of undoubted advantages resulting from the simplicity of the use as well as the arbitrariness in the selection of criteria, the portfolio analysis are not without disadvantages. There are opinions, they are only the visualization of the problem and not a specialized analytical tool, providing answers to questions about allocation of resources and facilitating the formulation of a strategy [Yorke, Droussiotis 1994]. Regardless of negative opinions about portfolio analysis, they can provide an excellent starting point for logistics companies for the evaluation of customers by the use of other more specialized methods.

The individual multidimensional analysis of customers is another approach to identifying customer value [Krafft 2007]. This method is a kind of the development of a portfolio analysis. It involves creating the set of criteria, significant for a company and describing its customers and assigning them rating values according to previously approved scale (1-5). The number of specified criteria is not important but their actual importance for a company is really important. The multidimensional look at a company is the greatest advantage of this approach. Due to the necessity of the individualization of this tool, logistics companies should appropriately create the set of criteria describing their clients. However, such approach, based on subjective judgments of managers, creates the danger of the selection of unimportant criteria, which can lead to wrong results.

The another method of the identification of the customer value, which could be implemented in the logistics branch, is the analysis of the rentability of customers. It is understood as the balance of revenues and costs generated by each client. This method, although seems relatively easy to be used, gives some problems in practice. Logistics companies, which are able relatively easily to determine individual variable costs connected with customer services, cannot forget about costs of the customer acquisition and the marketing communication. Already mentioned CRM systems meet the needs of managers and greatly facilitate the access to data [Wallenburg 2009].

The model PCV (past customer value) is another method, which takes into account the past behavior of the customer. The customer value is evaluated on the basis of the history of contacts, but on the contrary to the analysis of the rentability, the value of contacts is discounted according to the formula [Kumar 2008]:

$$PCV = \sum_{i=1}^{T} GC_i \times (1+r)^t$$

where:
- $i$ - client’s number,
- $r$ - discount rate applied,
- $T$ - number of periods preceding the current one,
- $GC$ - client’s margin for transaction $i$ in period $t$.

The ABC method is another method, which groups partners on the basis of the history of their behaviors. It uses the concept created previously for the purpose of analyzing the concentration of incomes. This method uses the Pareto principle. The basis of it is the statement, that 20% elements of analyzed population represent 80% of the accumulated value of the characteristics [Śliwczyński 2007]. The customers of a company are divided in three groups (A, B and C), where the criterion is their share in the turnover generated for the company. The first group consists of 20% of customers generated 80% of incomes, which are the most important clients for the company from the economic point of view. This group requires a special attention. The second group (B) consists of 30-35% of customers, which give app. 15% of the accumulated value. The last group includes 45-50% of customers, which give app. 5% of the accumulated value. The logistics companies, which updated regularly incomes, received from each customer, are able to use this tool even without implementation of special analytical softwares or complex databases.
The RFM (recency, frequency, monetary) method is one of the most widely used indicators for evaluating customers of a company, applied already for years for the segmentation in the direct marketing [Keiningham, Aksoy, Bejou 2006]. The customer value is calculated there based on previous purchasing behaviors of each customer. Based on internal data of a company, three values are determined for each of them: recency (time since the last purchase), frequency (of purchase during the analyzed period) and monetary (the total value of purchases made by a customer in the analyzed period). The appropriate weights are assigned to each value and based on that, the customer value is calculated by the use of the formula:

\[ RFM = (r \times \text{weight}) + (m \times \text{weight}) + (f \times \text{weight}) \]

where:
- \( r \) - time since the last purchase,
- \( m \) - total value of all purchases,
- \( f \) - frequency of purchases in the analyzed period.

The short time since the last purchase, high frequency of purchases as well as big values of purchases is the characteristics of the most desirable customer from the point of view of a company. The crucial part of RFM method is the proper determination of weights assigned to the variables. It is made based on previous experiences, using heuristic methods or simple regression techniques [Kumar 2008]. The inappropriate selection of weights can result in too subjective assessment of the customer value, leading to wrong conclusions and useless indicators [Kozielski 2006].

The simple way of calculation as well as easy access to necessary data are the most important advantages of RFM method. Additionally, the implementation of RFM method requires no complex analysis, sophisticated software or specialist marketing and statistics knowledge. The RFM indicator can be used by the logistics companies offering a diverse range of services and supporting customers at periodical rate. Otherwise, the dominant factor determining the customer value becomes only the total value of all transactions.

The method, determining the CLV indicator (customer lifetime value) is another, one of the most sophisticated, tool supporting the process of evaluating customers. The customer value in this method is equal to present value of future cash flows attributed to the relationships with the client [Pfeifer, Haskins, Conroy 2005]. This method is based on the method of discounting cash flows used in financial management. It can be used to determine the customer value of only one client or the whole segment and takes into account the possibility of the transfer of a client to the competition [Gupta, Lehmann 2006]. This model is ideal for the companies working according to rules of marketing partnerships, which create, develop and maintain long-term relations with customers.

Since all activities are related to specific investment costs, the company should be able to determine their profitability [Ramanathan 2010]. The customer lifetime value is the total value of profits, which the company obtains during the time of the cooperation with individual customers. In case that the relation client-supplier is the one-time, the customer lifetime value is equal to the profit achieved during this one transaction. In case of repeating purchases, this value is equal to the discounted value of all transactions, made with this client. The customer lifetime value is calculated for fixed periods, according to the formula [Kozielski 2006]:

\[ CLV = \frac{C_1}{(1+k)} + \frac{C_2}{(1+k)^2} + \ldots + \frac{C_n}{(1+k)^n} \]

where:
- \( C_i \) - profits provided by client in the period \( i \),
\[(1+k)^{\Delta t} \quad \text{- discount rate for year } i,\]
\[k \quad \text{- cost of capital.}\]

The fixed time of cash flow is taken for calculations, identical for each period. The model applies only to customers engaged in transactions with the company. It ignores the past and future customers and costs of obtaining them. The choice of time of cash flow or the randomness of the process of the purchase is also not included in this method. The cost of a capital needed for calculation of discount rate in subsequent years is set at the required rate of the return of the invested capital. The required rate of return shows the engagement of funds in the project. From the point of view of the owner, such factors like the inflation, return on the free-risk investment as well as the risk of the commitment of resources should be taken into consideration in this method as well. The entrepreneur is willing to invest funds only when the effects of the projects are at least equal to costs of capital.

Another model used to calculate the customer value is the model proposed by S.Gupta, D.R. Lechmann and J.A. Sturat [Dobiegała-Korona 2006]. This model takes into consideration life cycles of various groups of clients and indicators of rotations and is based on the assumption, that any company both attracts and loses clients throughout the whole period of its market activities. In this case the customer value is calculated according to the formula:

\[
CLV = \sum_{k=0}^{\infty} \frac{n_k}{(1+i)^k} \sum_{t=k}^{\infty} m_{t-k} \frac{r^{t-k}}{(1+i)^{t-k}} - \sum_{k=0}^{\infty} \frac{n_k c_k}{(1+i)^k}
\]

where:
\[k \quad \text{- period of life of various groups of clients having different life cycles,}\]
\[n \quad \text{- number of customers acquired in subsequent periods,}\]
\[i \quad \text{- discount rate,}\]
\[t \quad \text{- time period analyzed,}\]
\[m \quad \text{- income generated by the client in time } t,\]
\[r \quad \text{- indicator of client’s rotation,}\]
\[c \quad \text{- cost of the acquisition per client.}\]

The starting point of the model is to determine the values of each group of customers, which were distinguished by their life cycles. Then, the values of all present and future clients are summarized. Each customer generates the income \(m\) during the period \(t\), and the future incomes can be discounted for the present period by the use of the discount rate [Dobiegała-Korona 2006].

Using of CLV indicator requires, in both discussed cases, the knowledge of such concepts like the value of money in time, net present value and the discount rate. The logistics companies, while using the life value, must also have databases containing information on past transactions of customers, margin levels in each case, operating costs or expenses on customer’s acquisition.

**SUMMARY**

The aim of the identification of key customers is to facilitate the optimal allocation of resources of the company. Not all customers are equally important for the company, and the company is not able and should not try to acquire and satisfy needs of each customer. It should be mentioned, that the departure of a non-profit client is beneficial for the company, because expenses on keeping of unprofitable customers are unprofitable.
Many logistics companies identify the value of their customers by the use of the profit generated by them in the past. However, it should not be ignored, that the previous behaviour of clients does not need to repeat in the future. There are also other factors, which should decide about the attractiveness of customers and the key factor should be the probability of a success thanks to contacts with that customer. The criteria of their attractiveness should be precisely very clearly at the process of the identification of key clients. They can vary, depending on the size of a company, a market, where it operates or an industry.

Definitely, the customer value should be taken into consideration in the management of relationships with business partners in the present turbulent environment. The incomes and costs of the service, generated by clients as well as the nature of relationships with them influence the final success of the company.

It should be remembered, that the evaluation of the customer value in logistics companies should not be restricted to only one of above described methods. The analysis presented in this paper indicates, that the verification of obtained results should be made simultaneously by the use of a few methods not only one of them. The logistics company can successfully use portfolio methods in the combination with such indicators lie CLV, PCV or RFM. The multidimensional analysis helps the customer management and can increase the value of the whole company.

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ANALIZA PORÓWNAWCZA INSTRUMENTÓW POMIARU WARTOŚCI KLINTA W DZIAŁALNOŚCI PRZEDSIĘBIORSTW LOGISTYCZNYCH

STRESZCZENIE. Wstęp: Wzrost popularności koncepcji marketingowych stawiających klienta w centrum zainteresowania przedsiębiorstwa, jak również łatwy dostęp do danych związanych z zachowaniami konsumentów, przyczynił się do wzrostu znaczenia takich koncepcji jak zyskowność czy wartość klienta. Ale pojęcie wartości klienta nie jest jednoznacznym pojęciem. Może być nierówny przy wykorzystaniu różnorakich instrumentów w zależności od potrzeb przedsiębiorstwa, charakteru branży czy horyzontu czasowego.

Metody: Następujące, najczęściej stosowane metody pomiaru wartości klienta zostały wybrane, opisane oraz ocenione z punktu widzenia ich przydatności: różnego rodzaju analizy portholowe (dwustronnią, trzustonnią, macierz 9-polewą, itd.), wielowymiarowa analiza klientów, analiza rentowności klientów, model PCV, metoda ABC, metoda RFM oraz CLV.

Wyniki: Zalety i wady każdej z analizowanych metod zostały zaprezentowane i poddane ocenie. Dyskusji poddano przydatność każdej z nich. W sektorze przedsiębiorstw logistycznych pomiar wartości klienta może okazać się skutecznym narzędziem w zarządzaniu relacjami z klientem i skutecznie zwiększyć ich zyskowność. Ponieważ nie istnieje jeden uniwersalny sposób pomiaru wartości klienta, odpowiedź dla wybranej branży, o wyborze konkretnej metody decyduje wiele czynników, takich jak profil działalności, czy liczba klientów obsługiwanych przez przedsiębiorstwo.

Wnioski: Celem identyfikacji kluczowych klientów jest ułatwienie procesu optymalnej alokacji zasobów przedsiębiorstwa. Nie wszyscy klienci są tak samo istotni dla przedsiębiorstwa i przedsiębiorstwo nie powinno próbować zaspokoić potrzeb każdego z klientów. Należy pamiętać, że ocenę wartości klienta nie należy dokonywać w oparciu o tylko jedną z omawianych metod. Przedstawiona analiza wskazuje, że ocena otrzymanych wyników powinna być dokonana przez zastosowanie równolegle kilku metod, a nie tylko jednej z nich. Firmy logistyczne mogą z powodzeniem stosować metody portfelowe w połączeniu z takimi wskaźnikami jak CLV, PCV czy RFM. Wielowymiarowa analiza wspomaga proces zarządzania klientami oraz przyczynia się do wzrostu wartości całego przedsiębiorstwa.

Słowa kluczowe: wartość klienta, rentowność klienta, wartość życiowa klienta (customer lifetime value), portfel klientów.
VERGLEICHSANALYSE DER INSTRUMENTE ZUR VERMESSUNG DER KUNDENWERT VON LOGISTISCHEN UNTERNEHMEN


Codewörter: Kundenwert, Kundenrentabilität, Kundenlebenswert (Customer Lifetime Value), Kundenportfolio.

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