

The importance of customer lifetime value in determining their profitability

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Abstract

Measurement of the customer lifetime value is the key economic variable conditioning the development and maintenance of long-term profitable relationships with customers. It also plays a vital role in decisions regarding the acquisition of new customers and retention of current. Consequently, it affects the ability to continue the business activity of the company.

According to studies by different authors, of utmost importance for companies are their customers. At the same time it was found, that in spite of this, the biggest gap is between the significance of customers for the company and the quality of the measurement of this significance, that is measuring achievements of customer relations. The sales departments of companies should not focus on maximizing the profitability of individual transactions, but as the key issue consider the profitability of the customer, and therefore the profitability of the considered in the long term. In order to estimate properly the customer profitability, the company must be able to determine the costs that it will incur in connection with the acquisition and maintenance of customer and revenue obtained through him. In order to determine the cost of acquisition and maintenance of the relationship with the customer, the company can use customer cost accounting. On the other hand, to determine the cumulative profitability of the customer it is also necessary to estimate the time of collaboration with him, which introduces some subjectivity in the estimation of customer lifetime value (CLV). The combination of all these elements allows to specify the customer lifetime value, which is a value a priori. This article aims to analyze the usefulness of the basic methods for determining the customer lifetime value in companies.

1. Introduction

Measurement of customer lifetime value is the key economic variable conditioning the development and maintenance of long-term profitable relationships with customers. It also plays an important role in decisions concerning the acquisition of new customers and retention of current. Consequently, it affects the ability to continue the business of the company.

Companies operating in the rapidly changing market are particularly susceptible to qualitatively accurate forecasts regarding the selection of the appropriate range of products, ways of implementation of purchasing processes, pricing policies, incentive schemes, etc. All these problems are directly or indirectly related eventually to customer because this is the customer that generates profits for the company necessary to run and continue the business and development. According to M. Treacey and F. Wierseman (1995) something without value for the customer has no value for the company's owners. Research conducted by "The Economist" (Gupta, Lehman, 2008) in 2002 among 681 executives shown their belief that the greatest attention of the management staff should be paid to the customer (Fig. 1).

At the same time it was found that despite that the biggest gap was between the significance of customers for the company and the quality of the measurement of this significance that is measuring achievements of customer relations.

The sales departments of companies should not focus on maximizing the profitability of individual transactions, but as a key issue considers the profitability of the customer, and therefore the profitability considered in the long term. Customer profitability should be understood as the

difference between the revenues obtained through contacts with the customer and all the costs generated by the relationship with the customer.

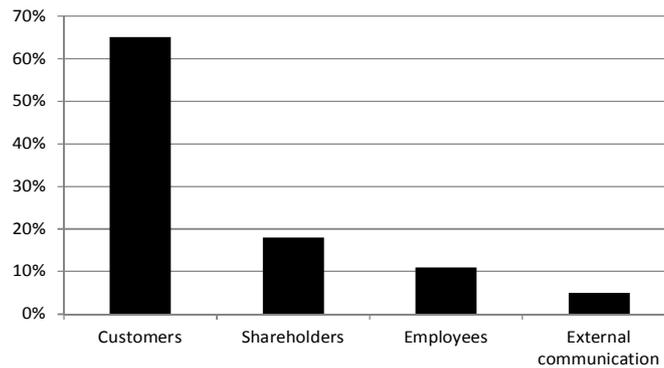


Figure 1. The importance of customer to companies' management

Source: (Gupta, Lehman, 2008).

This article aims to analyze the usefulness of the basic methods for determining the customer lifetime value in companies.

2. Customer lifetime value

In order to estimate properly the customer profitability, the company must be able to determine the costs that it will incur in connection with the acquisition and maintenance of customer and revenue obtained through him. In order to determine the cost of acquiring and maintaining the relationship with the customer company should use customer cost accounting (Lew, 2015). In turn, to determine the cumulative profitability of the customer it is also necessary to estimate time of collaboration with him, which introduces some subjectivity in assessing the value of customer life. The combination of all these elements can determine the customer lifetime value which is a value a priori.

In the most general form of the customer lifetime value was presented by S. Gupta, D. R. Lehmann and J. A. Stuart (2004; Gupta, Lehmann, 2003), who determined it with this equation:

$$CLV = \sum_{t=1}^n \frac{m_t}{(1+d)^t}$$

Where:

CLV – customer lifetime value,

m_t – margin achieved thanks to the sale of goods for the customer in period t ,

d – discount rate.

An expansion of this approach is an assertion that the customer lifetime value is the present value of cash flows generated during the entire life cycle of a customer in a company. In this case the cash flows are the basis for determining the customer lifetime value. Customer lifetime value in this approach is expressed as follows (Doyle, 2003):

$$CLV = NCF_1 + \frac{NCF_2}{1+d} + \frac{NCF_3}{(1+d)^2} + \dots + \frac{NCF_n}{(1+d)^{n-1}}$$

where:

NCF - net cash flows,

d - discount rate.

This formula is not free of defects, as well as any other, which is trying to create a visualization of the future. In order to correctly determine the cash flow, companies must predict future revenues and costs. The problem is a reliable estimate of the revenues arising from the fact of lack of information on the number of new customers acquired, as well as the retention of current.

Another problem is to define the width of range of products purchased by customers in the future and the margin on these sales. Costs appear to be easier to estimate, especially if an up to date history of contacts with customers up to now is run. Such history is included in a typical system of financial accounting records.

To determine the customer lifetime value in the most accurate manner, different authors propose expanding the relationship by means of which it is determined. H. H. Bauer, M. Hammerschmidt, M. Braehler propose a formula that takes into account a variety of categories arising from customer relations (2003):

$$CLV_i = -AC_i + \sum_{t=1}^n \left\{ \begin{array}{l} r_{ii}^t \cdot \frac{(AR_{ii} + UR_{ii} + CR_{ii} + RV_{ii}) - (SC_{ii} + MC_{ii})}{(1+d)^t} \\ - r_{ii}^{t-1} \cdot (1-r_{ii}) \cdot \frac{TC_i}{(1-d)^t} + r_{ii}^t \cdot \left[\frac{InfoV_{ii} + CoopV_{ii} + InnoV_{ii}}{(1+d)^t} \right] \end{array} \right\}$$

where:

CLV_i – CLV of customer i ,

AC_i – acquisition costs of customer i ,

r_{ii} – retention rate of customer i in period t ,

AR_{ii} – autonomous revenue of customer i in period t ,

UR_{ii} – up selling revenue of customer i in period t (retention value),

CR_{ii} – cross selling revenue of customer i in period t ,

RV_{ii} – gross contributions from reference activities of customer i in period t (reference value),

SC_{ii} – costs of serving the customer i in period t ,

MC_{ii} – marketing costs for retaining customer i in period t ,

TC_i – termination costs for the relationship with customer i ,

$InfoV_{ii}$ – information value of customer i in period t ,

$CoopV_{ii}$ – cooperation value of customer i in period t ,

$InnoV_{ii}$ – innovation value of customer i in period t ,

d – discount rate.

This formula takes into account the benefits and costs associated with the customer throughout his entire lifecycle. Questionable is the ability to determine by the company the value of reliable individual components of the formula. How to determine the value of such parameters: the value of information or the value of innovation. This formula also combines different methods for determining the value of individual parameters and implies the use of a variety of documents, which results in the introduction to this formula estimates, sometimes far-reaching. However, it is interesting enough that the individual companies may develop its formula on its basis, which they will use for their needs. Subjectivity of the estimates will then concern all the customers of the company, and so it will be possible to compare the results achieved thanks to this formula.

Skillful determination of the value of the entire portfolio of customers, and so the value of both existing customers and future is also important. For the purpose of estimating the value of the customer portfolio one can determine the value of customer equity. Customers' equity can be defined as the present value of the surplus of revenues from the sale over the expenses arising from the relationship with both present and potential customers. In this case, the capital (the value of) customers can be presented as:

$$CE = \sum_{i=1}^n CLV_i + \sum_{j=1}^m CLV_j$$

where:

CE – customer equity,

CLV_i – lifetime value of present-the customer,

CLV_j - lifetime value of future j -the customer.

This model of determining customer value was proposed by S. Gupta, D. R. Lehmann, J. A. Stuart (2004a; Nita 2008). From this formula it does not result directly what happens to the capital of customers who will leave the company during the relevant period. For this reason, this model should be supplemented with the values related with customers who give up the maintenance of the relationship with the company or those, who will be given up by the company itself. In this case the form of the model will be as follows:

$$CE = \sum_{i=1}^n CLV_i + \sum_{j=1}^m CLV_j - \sum_{z=1}^k CLV_z$$

where:

CE - customer equity,

CLV_i - lifetime value of present i -th customer,

CLV_j - lifetime value of future j -th customer.

CLV_z - lifetime value of z -th customer, which will leave in the considered period.

A similar effect can be achieved by modifying the model in such a way as to include the retention of existing customers or even potential, acquired during the relevant period. The model then takes the form:

$$CE = R \sum_{i=1}^n CLV_i + \sum_{j=1}^m CLV_j$$

where:

CE - customer equity,

R - customer retention index,

CLV_i - lifetime value of present i -th customer,

CLV_j - lifetime value of future j -th customer.

Despite the problems with estimating the customer lifetime value, however, the benefits of this solution outweigh the disadvantages to be overcome in the application of this formula.

S. Gupta and V. Zeithaml (2006) summarizing their research, noticed significant relationships between various indicators concerning customer and profitability of sales. On the basis of these studies they have identified nine generalizations. These generalizations are important because they help in understanding the role of customer lifetime value (CLV) and customer equity (CE) in shaping the company's profitability. These generalizations are as follows:

1. Improved customer satisfaction has a significant positive impact on the financial performance of the company - so results from many studies.
2. The relationship between customer satisfaction and profitability is asymmetrical and non-linear. Increase in customer satisfaction has a smaller positive impact on the profitability of the company than a lack of satisfaction, which translates into greater decline in profitability.
3. The strength of the relationship of satisfaction with profitability varies across industries, as well as across individual companies in the industry.
4. There is a strong positive relationship between customer satisfaction and their retention.
5. Quality of service and customer satisfaction is highly correlated with customer behavior. This connection is difficult to predict.
6. The relationship between the measurable and not measurable metrics concerning customer is non-linear, as the relationship between customer satisfaction and profitability is non-linear, so the relationship between customer satisfaction and the intention to make their purchase is difficult to determine.
7. The decisions taken on the basis of measurable indicators on the customer, such as customer lifetime value (CLV) lead to improvement in financial performance.

8. Retention of customers is one of the key measures of customer lifetime value (CLV) and profitability of the company.
9. Measures concerning the customer, in particular customer lifetime value (CLV) and customer equity (CE), provide a good basis for assessing the market value of companies.

According to H. K. Stahl, K. Mätzler, H. H. Hinterhuber (2003) assessing the value of customers faces four major problems:

- 1) Financial accounting standards do not provide (generally for reporting purposes) the allocation of the costs of special relationship with customers.
- 2) In the CLV formulas cash meters prevail.
- 3) Revenues and costs change over time.
- 4) The cash flows are generated at different times, in different places and at different levels of risk.

All formulas for determining the customer lifetime value have both advantages as well as disadvantages.

3. Conclusion

In connection with the occurrence of these problems, companies must meet certain requirements in order to reliably determine the profitability of customers:

Requirement 1: All costs must be assigned to customers in proportion to the most characteristic economic quantities differentiating customers between themselves. The most commonly used measures in the form of turnover with a given customer are in practice misleading. Customers who have a good negotiating position, thanks to the high turnover, are therefore often oriented to making claims against the supplier. The effects of such a procedure are a low margin associated with large expenditures associated with commercial service before and after sales. One has to remember that "medium" customers, who generate higher margins, can over time absorb more sales than customers with currently the biggest volume of purchases. Standard accounting systems are not focused on specific customer or even groups thereof, with the result that the indirect costs are distributed in a way that has no relation to their true causes. For this reason, the established profitability of a customer is unreliable. "Simple" customers are harmed in favor of demanding customers. Thus, in many cases, undemanding customers subsidize demanding customers. One solution to this problem is to allocate costs to the activities performed for individual customers, not to customers themselves. Such behavior is characteristic of the activity-based costing.

Requirement 2: In determining customer profitability one should consider both the financial benefits, as well non-financial ones. Taking into account only financial benefits in customer relationships results in an underestimation of the real customer profitability. Overall, the benefits of customer relations can be represented as four basic components that presents Fig. 2.

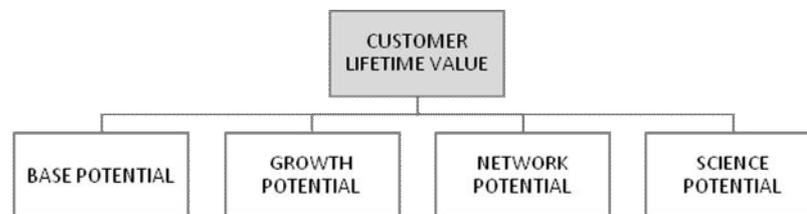


Figure 2. Components of customer lifetime value

Source: (Stahl, Matzler, Hinterhuber, 2003).

In determining the value of the base customer potential, companies should take into account the net revenues from the sale of goods and the cost of purchase of goods sold, the cost of acquisition and retention of the customer for the estimated time of collaboration with him. Of course, future cash flows should be discounted to present value.

Growth potential means additional benefits arising from cross-selling or up-selling. Another benefit may be to encourage the customer to increase the value of his base purchases (increasing the share in the portfolio) or to move to the next stage in the customer life cycle in a situation indicative of improving relations with him.

Network potential is associated with the additional revenues obtained through the recommendations of the customer to another customers or mere reputation of the customer on the market. Therefore, the effect may be twofold. First, the customer recommendations can lead to additional sales to new customers and lower the cost of their acquisition. Secondly, the effectiveness of such promotion may be the higher the better reputation on the market has the customer. Large and well-known from the application of stringent criteria in selecting suppliers customer can do much to enhance the reputation of the trade company. Having such a customer definitely reduces the barrier to entry into new markets and facilitates the building of other lasting relationships with other customers. A similar role could be played by the fact of a commercial company being a provider of a purchasing group, especially if it is organized by a major institution in the region.

Science potential refers to the knowledge. Customer relationships allow for development, testing and refinement of different types of knowledge, such as market conditions (competitors, customers, channels, suppliers, local communities and groups of political interests), technologies and business processes or identification of future trends. This type of knowledge results in more reliable forecasts and plans, providing better understanding of the needs of current and future customers, and thus leads to higher quality service and commercial activities associated with it.

Requirement 3: One should take into account changes in the value of revenues and expenses during the customer relationship. Many authors (see Reichheld, Sasser, 1990) argue that the customer profitability increases with the length of duration of the relationship with him. They attribute this to decrease in transaction costs, increase in the volume of purchases, etc. However, as many authors (see Loveman, 1998; Rucci, Kirn, Quinn, 1998) argue that it is not like that, or at least it is not a rule. The studies of these authors suggest that long-term customers do not have to be profitable customers. Overall, the dynamics of changes in the value of income and expenses just depends largely on the nature of the relationship with the customer at a time. It may happen that trade companies trying to maintain a relationship with the customer incur additional costs associated with it, not noticing that the relationship with him is not profitable, despite the still large income generated by it.

Requirement 4: Cash flows generated during the entire duration of the customer relationship must be discounted to present value. Customers should be treated as an investment, which durability is determined by the customer lifetime value associated with the revenues, costs and duration of the relationship potential.

Requirement 5: Uncertainty of customer relationships should be taken into account. The longer the time horizon of the considered customer relationships, the greater the uncertainty of achieving the objectives. Therefore, one should also determine the risk of each customer relationship in terms of volatility and sensitivity. This risk can be defined as events that negatively affect the cash flows generated during the customer relationship.

Models of the customer lifetime value are dependent on many variables, so their application in practice should encourage managers to take action aimed at optimizing these variables.

4. Direction for future research

Further studies should focus on the modeling of new methods for identifying customers' profitability. Models of customer profitability determination presented in this article are not perfect. They should be further developed by adapting them to the specifics of individual companies. Another interesting area of research can be checking whether the models are universal, whether they should be modified on account of the nature of the business activities: manufacturing, trade, service.

References

- Bauer, H.H., Hammerschmidt, M., Braehler, M., 2003. The Customer Lifetime Value Concept and Its Contribution to Corporate Valuation, *Yearbook of Marketing and Consumer Research*, vol. 1, pp. 54.
- Doyle, P., 2003. Marketing wartości, Felberg, SJA, Warszawa, pp. 97.
- Gupta, S., Lehman, D. R., 2008. Managing Customers As Investments, The Strategic Value of Customers in the Long Run, Wharton School Publishing, 4th editions, Upper Saddle River, pp. 3.
- Gupta, S., Lehmann, D. R., 2003. Customers as Assets, *Journal of Interactive Marketing*, vol 17, Issue 1, Winter, pp. 10.
- Gupta, S., Lehmann, D. R., Stuart, J. A., 2004. Valuing Customers, *Journal of Marketing Research*, Vol. XLI, February, pp. 8.
- Gupta, S., Lehmann, D.R., Stuart, J.A., 2004a. Évalue les customers, *Recherche et Applications en Marketing*, June, vol. 19, pp. 103.
- Gupta, S., Zeithaml, V., 2006. Customer Metrics and Their Impact on Financial Performance, *Marketing Science* vol. 25, no. 6, November–December, 718–739.
- Lew, G., 2015. Rachunek kosztów klienta w zarządzaniu przedsiębiorstwem handlowym, Oficyna Wydawnicza Politechniki Rzeszowskiej, Rzeszów, 1-320.
- Loveman, G. W., 1998. Employee Satisfaction, Customer Loyalty, and Financial Performance An Empirical Examination of the Service Profit Chain in Retail Banking, *Journal of Service Research*, August vol. 1 no. 1, 18-31.
- Nita, B., 2008. Rachunkowość w zarządzaniu strategicznym przedsiębiorstwem, Wolters Kluwer business, Kraków, pp. 231.
- Reichheld, F. F., Sasser Jr., W. E., 1990. Zero Defections: Quality Comes to Services, *Harvard Business Review*, September–October, no. 68 (5), 105-111.
- Rucci, J., Kim, S. P., Quinn, R. T., 1998. The employee-customer-profit chain at Sears, *Harvard Business Review*, January, no. 76 (1), 82-97.
- Stahl, H. K., Matzler, K., Hinterhuber, H. H., 2003. Linking Customer Lifetime Value with Shareholder Value, *Industrial Marketing Management*, vol. 32, pp. 268.
- Treacy, M., Wiersema, F., 1995. The Discipline of Market Leaders, Addison Wesley, Reading Mass, pp. 25.
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