

Re-illumination of VOC analysis

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Abstract

Main purpose of existing VOC (the voice of customer) analysis is suppressing the VOC occurrence. But, in real situation, it is impossible to reduce the VOC occurrence to the zero level. Company's strategy to decrease specific customer complaints may cause another customer's complaints increase. Especially, in a financial industry, customer complaints are directly connected with company's profit. That is, the VOC from their profitable customer, product and channel is major concern of companies. In this paper, I reveal the relationship between CRM (customer relationship management) activity and VOC analysis and various analysis methods.

1. Introduction

Until very recently, companies were focused on selling as many products and services as possible, without regard to who was buying them. But, rapid development of information technology and the Internet enables customers have more choices than ever before about what

to buy, where to buy, and how to buy.

Also, the emerging of electronic commerce has changed many aspects of existing business, business opportunities, and process. Existing companies are being challenged to reconsider the basic business relationship between the company and its customer. But, it has not changed the underlying factor that addressing customer needs leads to sustainable profit.

In this respect, analytical CRM is helping companies to meet customer's needs and create more enduring and profitable customer relationships by identifying opportunities to communicate with customers. [1] In another words, analytical CRM is helping companies to build 'customer-centered' marketing initiatives with integrated customer information using various knowledge discovery techniques.

2. VOC Analysis Framework

An early stage, the main goal of VOC analysis is detecting the problematic area for reducing customers' complaints. In this respect, companies only focused a frequency of VOC, the

number of VOC occurred in given period, with respect to their products, region, code of complaint, and customer groups. Most frequently occurred VOC is the target of control. Regardless of the most important and original goal of VOC is to prevent potential problems that might arise; this approach is a kind of “the doctor after death.”

To cope with the future occurrence of VOC, I added the new patterns in terms of frequency with traditional patterns, such as increasing, decreasing, and sudden peak. Types of customer complaint pattern are composed of “new”, “chronic”, and “repeated” ones. The ‘new’ pattern indicates an occurrence of new complaints that does not exist before. The ‘chronic’ pattern reveals that a specific complaint is always exists regardless of company’s effort to reduce them. It indicates that company’s problem solving approach does not appropriate. The ‘repeated’ pattern recognizes some fluctuation pattern with period occurred periodically. This is a one-dimensional analysis; a pattern discovery phase.

But, a cause of complaints may induce different customer complaints. For example, a new financial regulation brings about complaints on products closely related to the regulation. In this case, customer complaints, which are ascribed from different customers, closely related to each other but the one-dimensional analysis couldn’t detect their relationship. A two-dimensional analysis is needed to overcome such shortages; it identifies the unrevealed relationship between problematic areas which is recognized by a one-dimensional analysis.

The two-dimensional analysis is performed to find a relationship between two categories; products, code of complaints, region, and customer group. To do so, I focus on the VOC occurrence patterns and their relationship. Stability index is used to identify the characteristic of VOC. Time-series analysis is performed to find a time-lag between two patterns and increase and decrease of one pattern is always opposite to the other pattern; a pattern analysis phase.

Analysis results are represented with a quality profile, cost profile, customer value map, and won/lost analysis – these are a part of a war room panel, which is used to customer value analysis. The quality profile summarizes the aspects of the marketplace that are usually easiest to change to improve customer complaints. Also, it is an indicator of how well company is performing overall customers in companies target market. The cost profile indicates factors that affect customer’s perception of a product’s cost to customers. The customer value map is used to compare value positioning. The won/lost analysis is performed to compare with company’s competitors.

As I mentioned before, these analyses are mainly focused on the control of VOC. To do so, we have to find problematic areas and their relationship using a pattern discovery and analysis phase. Their results will be represented with a customer value analysis’s view point, as depicted Figure 1.

Pyon [2] proposed a practical VOC analysis framework in a service industry – especially an

insurance industry. In her master thesis, she performed a one- and two-dimensional analysis with a VOC data, customer profile, and sales data. She developed a practical procedure of one-

and two-dimensional analysis and an empirical guideline to pattern discovery, such as criteria for increase, decrease, sudden peak and so on.

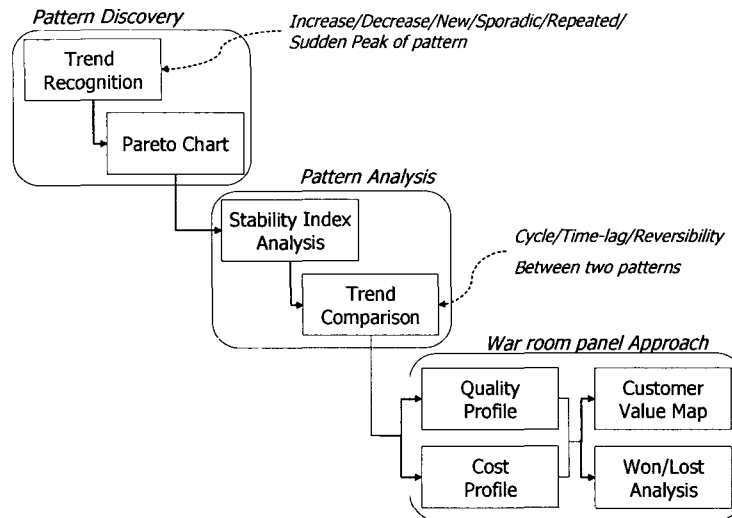


Figure 1. VOC Analysis Framework

2.1 Stability Index

The Pareto chart is useful in distinguishing the “vital few” from the “trivial many” problems which could be addressed by VOC. The Pareto chart gives us important information about a snapshot of VOC. But, it could not provide meaningful information on a series of snapshot, such as fluctuation of each item’s VOC. If we want to compare the present status with the previous one, then, it is difficult to conclude that which is better. For example, decreasing worst item’s number of VOC always means ‘improvement’ and vice versa? The answer is

“NOT always.” In this manner, I suggest an index as an alternative to represent the overall situation and imply a difference between first and second worst item. [3]

I assume that the best situation is occurred when each complaint’s occurrence level is almost the same. Because, there always exist some uncontrolled factors which influence the VOC. We can not make the value of VOC zero, whatever we make every effort to decrease the number of VOC.

Intuitively, stability index represents an area

between the upper cumulative curve and the lower straight line, whose slope is the mean of p_i . When stability index has zero value, the upper curve coincides with the lower straight line. And, when two curve shape a right triangle, stability index has a maximum value.

Stability index satisfies the characteristics of index: Ability to measure, compare, and improvement. But, only “reversibility” characteristic does not always satisfy, if we

consider all items. That is, stability index does not represent one situation because, there are many case with stability index has same value. But, by Pareto’s rule, worst-two items occupy almost 80% of all; we could limit the number of item. To resolve this problem, I will consider only two or three items. As the number of item is decrease, reversibility is satisfied.

Figure 2 and a formula explains a stability index.

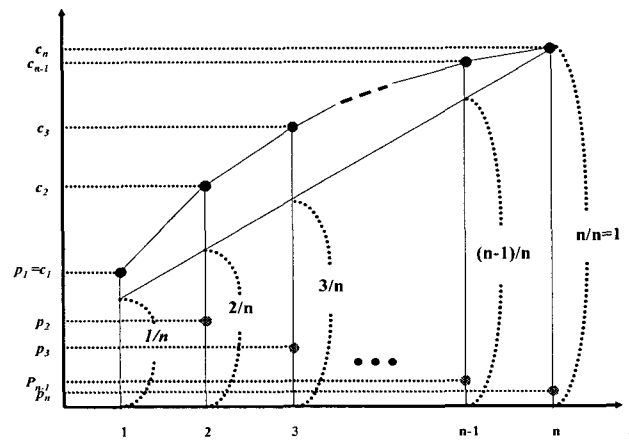


Figure 2. Stability Index

$$\text{Stability Index} = \frac{1}{2} \sum_{i=2}^n \left[\left\{ c_{i-1} - (i-1) \cdot \frac{1}{n} \right\} + \left\{ c_i - i \cdot \frac{1}{n} \right\} \right]$$

p_i : portion of VOC about i th item, $i = 1, 2, \dots, n$

c_j : the cumulated portion of VOC from first item to j th item, $i=1,2,\dots,n$

$$\sum_{i=1}^n p_i = 1, p_1 \geq p_2 \geq \dots \geq p_{n-1} \geq p_n$$

$$c_i = \sum_{j=1}^i p_j, i = 1, 2, \dots, n$$

2.2 VOC Forecasting

A main objective of forecasting is helping a company to decision-making process. In case of VOC forecasting, it helps companies to make decisions on their customer support policy, a new product development, and so on. Almost existing forecasting methods are fundamentally based on historical data pattern using a simple regression or neural network techniques. However, in a real world situation, terrible fluctuation or sudden peak, the assumption of status quo is not guaranteed. These situations are mainly ascribed from the internal and external events such as, promotion, new product launching, company's customer support policy, regulations, and so on. Such internal/external events - environmental factors - and the occurrence of VOC have a strong relationship. Thus, I supposed that fluctuations or sudden peaks are caused by internal/external events; I could get forecasting results considering internal/external events. With this result, I could construct an external/internal events' knowledge database. Inferred from this, I could establish or regulate the customer care policy. Besides, when the number of VOC exceeds the criteria, the upper limit of VOC based on forecasting results, a kind of warning would be notified to manager.

A VOC forecasting framework is composed of 3 phase: Preprocessing - Time-series forecasting - Tuning using knowledge base. In preprocessing phase, VOC data is summarized and normalized. In forecasting phase, I use a time-series forecasting method with a regression. In this phase, an effectiveness of the event has changed with respect to how long the time has passed so I

applied a different forecasting formula. To reduce effects of a sudden peak or a fluctuation, three-period moving average, six-period moving average, and exponential smoothing scheme is applied to a forecasting scheme. In tuning phase, the effectiveness of internal/external factors is applied to adjust forecasting results. In event-related knowledge database, through past experiences and heuristics by experts, effectiveness of internal/external factor and their weights with period of influence is stored. It can be applied to not-adjusted forecasting results.

Woo[4] indicates the practical VOC forecasting framework in her master thesis. She classified companies' internal/external events with two categories; positive-influence events and negative-influence events. Also, a practical procedure of VOC forecasting was developed and several decision criteria related to events - For example, applying methods, period of influence, their weight with respect to time, and so on - is empirically identified. Furthermore, she connected forecasting results with a company's strategy.

3. Discussion: Re-illumination VOC in collaboration era

As we mentioned before, main purpose of existing VOC analysis is suppressing the VOC occurrence. But, in real situation, it is impossible to reduce the VOC occurrence to the zero level. Company's strategy to decrease specific customer complaints may cause another customer's complaints increase. Also, reducing the VOC is not directly connected to company's

profit still.

In this respect, companies must focus on a fractional VOC which occurred at a target customer, product, region, and customer group. That is, the VOC from their profitable customer, product, and channel is major concern of companies. But, it does not mean existing VOC analysis should be ignored. It should be continued to control and suppress the entire VOC.

Analytical/Operational CRM activities help companies to understand their customers and products. Companies could provide the proper profitable products for the proper profitable customers through proper channels. In this situation, complaints from target products and customers greatly influence on company's profit. It is natural that companies want to resolve these complaints with a first priority. This is a new approach of VOC analysis in collaboration era.

For example, complaints from non-target customers or non-target products are simply processed through existing VOC analysis. Complaints, which are related to target customers and non-target product, also are passed to existing VOC analysis scheme. But, in collaboration era, products and customers should be simultaneously considered. That is, complaints from target product AND target customer is only concern to earn the company's profit.

In this manner, the analysis of VOC in

collaborative era is not a waste of company resource but a new indicator of customer loyalty. Also, it could help companies to verify their results of strategies coupled with a focus group research which focus on target customers with target products. Furthermore, this new approach of VOC analysis becomes a starting point of customer loyalty management.

4. References

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