

Research on the Customer Value Evaluation System of FX Science and Technology Corporation Ltd

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Abstract

Based on an analysis of the present situation of customer value evaluation of FX Science and Technology Corporation Ltd. in the stream media industry, this paper establishes a customer value evaluation system applicable to this company to evaluate the customer value and subdivide the customers, hence helping the company to integrate the effective resources to the most valuable core customers and the most potential sub-value customers. Through reasonably allocating the resources will a stable long-term customer relationship be established and the customers will participate in the management activities, improving the whole company's profit-earning ability and competitive ability in an all-round way.

Keywords: FX Company, Customer value, Customers' lifelong value, Customer value evaluation system

1. A Brief Introduction to FX Company

FX Science and Technology Corporation Ltd. is a high-tech enterprise focused on the stream media technology and dedicated to the research on the stream media communication technology. It mainly provides wired and wireless audio and video transmission and data transmission, wired and wireless internet access, complete schemes for the modern automatic direction on audio, video and data transmission, software development and technological service as well as overall solutions to the application of the stream media technology in different fields. Based on its research on the stream media technology, this company has developed some software products including FX2000 information special delivery, FX video resources service management system, FX video center and FX emergency command dispatching system, some of which have even won China's Torch Plan Certificate. Besides, this company has successfully conducted a series of applied programs in enterprises, government and army, providing the reliable guarantee for the accumulation, storage and effective management of video materials and enjoying the high reputation in the same industry. Currently, its products have been widely employed in courts, public security, transportation, electric power, finance, army and other fields. It has achieved the popular recognition among a great number of customers and system integrators with its excellent and stable nationwide large-scale monitor programs as well as its highly reliable and stable products with perfect functions, flexible operability and extendibility.

2. Problems in the Current Customer Value Evaluation of FX Science and Technology Corporation Ltd.

2.1 Lacking in the Reasonable Emergency Plan

Upon customers' visit for discussing the programs or technical schemes, this company always arranges the temporary personnel and therefore has the insufficient preparation. In addition, since a part of the management staff has retired from the military services, they only focus their attention on their previous armies and comrades-in-arms, lacking in the complete pre-sales services.

2.2 Merely Emphasizing the Current Value

In the company's business activities, only those customers having the business relations with the company recently are attached importance to, leaving those with the previous business contact or business intentions alone, hence failing to consider the great value brought by these customers in the future business activities. For instance, the customers' loyalty should be cultivated, the customers should be visited for their requests for improvement in the products, services and solutions, the customers should be attracted to the design and development of the new products and they should also be invited to experience a sense of superiority brought about by the new products. By urging the customers to pay for their bills, this company fails to consider issues from the perspective of the customers. At a more profound level, its business philosophy isn't attached to the customers' demands.

2.3 Frequent Facility Failures and High Maintenance Cost

This company suffers from a high back repair rate of its IPC. In addition, it has become its main problem that this company cannot produce its own core facilities conforming to the military product criteria. Accordingly, these products can only be processed by the excellent domestic IPC manufacturers. Their lacking knowledge about the whole manufacturing process leads to the low pass-rate of products as well as long repair time. The after-sale service department has no strict operation process or standards, where the relevant staff is only concerned about repairs with no idea about the reasonable charges for the specific services, such as examination fee, maintenance fee, software upgrading fee and so on. With only the general charges laid down by the commerce department, the high repair cost is unavoidable. It is the long repair cycle, high repair cost and insufficient communication with customers that have led to some customers' dissatisfaction, hence seriously influencing their loyalty to the company.

2.4 Insufficient Corresponding Scientific Analysis on the Customer Data

Since the top management and some department directors are mainly from veterans who have wide relations with armies and governmental institutions, there is a great amount of business information about these units, such as their basic information, demands for facilities, ultimate decision-makers, previous transaction data, credit records and so on in the commerce department of the company. However, most of them are VIP customers with large demands. Without the specific staff screening, selecting, distinguishing, analyzing, evaluating and applying these data, it is difficult to find out the customers' potential demands from such a lot of information in order to guide the company's management and marketing activities.

2.5 Lacking in the Analysis Tools for the Potential Customer Demands

Due to the frequent changes in the staff of the business department leading to no fixed staff to conduct the scientific analysis on customers' information, as well as the insufficient analysis tools to achieve office automation, it is hard to analyze and find out the customers' potential demands in a large amount of data. As a result, the company's sales tend to be passive and its frequent business relations with the customers may cause their repulsion.

2.6 Failing to Classify the Customers

The company only confirms its VIP customers according to the previous records while failing to attach the sufficient importance to those wait-and-see ones and initial ones or even holding hawkish attitudes to some regular customers, hence wasting resources and losing many customers.

3. Construction of FX Company's Customer Value Evaluation System

3.1 Constituent Elements of the Customer Value

3.1.1 Current Value

The customers' current value refers to the total value brought about by the customers with unchanged overall environment and consumption level. This index can only reflect the current value instead of any future changes, which is measured by two indexes including profit and transaction volume.

3.1.2 Potential Value

The potential value refers to the adjustment of the customer management strategies and enterprises' internal management strategies as well as the improvement of enterprises' operation procedure based on the customers' demands. In conformity to the customers' demands, the different products and resolutions should be designed, changing enterprises' adaptation to the customers into their adaptation to each other and establishing the strategic alliances between the enterprises and the customers. In this way, the current potential value can be shifted into the current value in the future. The potential value is mainly measured by 5 indexes, including customers'

business attitudes, customers' technical cognition, customers' loyalty, customer relationship and customers' potential business relationship.

3.2 Design of the Customer Value Evaluation Model

Following the principles of comprehensiveness, strong operability, independence and extendibility, with the existing customer value evaluation taken as the theoretical basis and the problems detected in the enterprises' practice and exploration, this paper designs an evaluation model including the current value and potential value as shown in Figure 1, in which all sub-indexes of the current value and potential value are further divided to give convenience to the following empirical analysis.

3.3 Empirical Analysis on the Customer Value of FX Science and Technology Corporation Ltd.

FX Company's customer value is analyzed according to the quantification method of the customer value evaluation system and evaluation indexes presented above. Taking a large number of customers into account, 10 customers' materials were selected randomly from the documents of the commerce department. The relevant staff and department directors were invited to summarize the customers' indexes and then to grade them after discussion and figure out each customer's value based on the weight of different indexes shown in this paper. However, since these customers' basic materials involved their enterprises or their privacy, their basic materials in this paper are omitted, with number 1-10 representing them, respectively.

3.3.1 Defining the Weight of the Index System

3.3.1.1 Constructing the Judgment Matrix and Defining the Single-level Weight

The relevant staff in the company quantifies the importance of the evaluation indexes with the 1-9 methods of scale to form the judgment matrix. The specific calculation process is as follows:

3.3.1.2 Weight of the Elements at Different Levels to the Elements at the Target Level

3.3.2 Ensuring the Customer Value

With 10 customers selected randomly from the commerce department, the directors of all departments in the company held a discussion to grade all evaluation indexes related to the customer value with the grading range

of {1,5} (shown in Table 13). With the formula $V = \sum_{i=1}^n W_i * X_i$ in which W_i stands for the weight of the elements and X stands for the corresponding scores, these customers' current value, potential value and ultimate comprehensive value are figured out as shown in Table 14.

3.3.3 Customer Value Improvement Strategy Based on the Classified Customer Management

3.3.3.1 Management Strategy of the Core Customers

The core customers have the greatest contribution to the company's profit, with Customer 6 and Customer 8 as representatives. Since the strategic alliance is the highest level of an enterprise's customer relationship management, the companies should form such alliances with the core customers. Greater efforts should be made to learn about the customers' demands, what problems they want to find solutions to from enterprises, whether it will be joint development or a company's full charge. In addition, the differentiation analysis should be conducted among the core customers mainly in their demands for the business value, products and services. Through such analysis, the core customers' specific demands and value orientation can be distinguished and therefore the enterprises will have a clear idea about the major business range from which they can earn their profits. Only on this basis will they allocate their resources in a better way, constantly improve their products, services and resolutions, improve their customers' satisfaction and loyalty, establish the firmer customer relationship, grab the most valuable customer resources and therefore achieve the maximized profits at the lowest cost. In spite of a variety of methods employed by the enterprises to hold their core customers, they have the same purpose.

3.3.3.2 Management Strategy of the Ordinary Customers

The ordinary customers here refer to those with the previous business talks or adoption of a company's products or technical schemes, with Customer 1 and Customer 4 as representatives. With the profound development of the stream media industry, these customers have greater demands for the audio and video technologies. Accordingly, the enterprises should spend a large part of their resources to cultivate these customers and transfer some valuable ones to the core ones. Due to the unsteady value orientation among the future customers, some current

core customers may not necessarily bring about greater profit for the enterprises while some current ordinary customers may develop into the core ones. Therefore, greater efforts should be made to develop them for the sake of long-term profits.

References

Chen, Mingliang. (2002). Customer Division Method Based on the Customer Lifetime Profit. *Economic Management*, (20): pp 15-20.

Han, Rui & Tian, Zhilong. (2003). Evaluation Method of the Customer Value. *Value Engineering*, (6): pp 36-40.

Qi, Jiayin, Quan, Mingfu & Shu, Huaying. (2004). Design of the Customer Value Evaluation Index System. *Nankai Business Review*, 7(3): pp17-23.

Qi, Jiayin & Shu, Huaying. (2005). *Customer Value Evaluation, Construction of Evaluation Model and Decision Making*. Beijing: Beijing University of Posts and Telecommunications Press.

Tao, Rong. (2005). Research on the Limitations of the Customer Lifetime Value Model Based on the Customer Cluster. (10): pp 307-308.

Wu, Xuanhong & Chen, Sa. (2005). Customer Development Strategy Based on the Customer Value Analysis. *Journal of Chongqing University (science edition)*. (7): pp 36-39.

Table 1. Customer number

Customer number	Sales volume (yuan)
1	1 241 500
2	1 560 742
3	247 360
4	1 830 420
5	148 131.35
6	114 830
7	529 327
8	536 010
9	4 170 701
10	5 225 360

Table 2. Total profit criteria level (C₁)

C ₁	C ₁₁	C ₁₂	$\bar{w}_i = \sqrt{\prod_{j=1}^2 r_{ij}}$	$W_i = \bar{w}_i / \sum_{i=1}^2 \bar{w}_i$
C ₁₁	1	4	2	0.8000
C ₁₂	1/4	1	0.5	0.2000

$\lambda_{max}=2$ CI=0, according to double-degree matrix RI=0 CR=0 conform to the testing consistence

Table 3. Purchase volume criteria level (C₂)

C ₂	C ₂₁	C ₂₂	$\bar{w}_i = \sqrt{\prod_{j=1}^2 r_{ij}}$	$W_i = \bar{w}_i / \sum_{i=1}^2 \bar{w}_i$
C ₂₁	1	2	1.1412	0.6667
C ₂₂	1/2	1	0.7071	0.3333

$\lambda_{max}=2$ CI=0, according to double-degree matrix RI=0 CR=0 conform to the testing consistence

Table 4. Business attitude criteria level (P₁)

P ₁	P ₁₁	P ₁₂	$\bar{W}_i = \sqrt{\prod_{j=1}^2 r_{ij}}$	$W_i = \bar{W}_i / \sum_{i=1}^2 \bar{W}_i$
P ₁₁	1	6	2.4494	0.8572
P ₁₂	1/6	1	0.4082	0.1428

$\lambda_{max}=2$ CI=0, according to double-degree matrix RI=0 CR=0 conform to the testing consistence

Table 5. Customers' technical recognition criteria level (P₂)

P ₂	P ₂₁	P ₂₂	$\bar{W}_i = \sqrt{\prod_{j=1}^2 r_{ij}}$	$W_i = \bar{W}_i / \sum_{i=1}^2 \bar{W}_i$
P ₂₁	1	1/5	0.4472	0.1667
P ₂₂	5	1	2.2360	0.8333

$\lambda_{max}=2$ CI=0, according to double-degree matrix RI=0 CR=0 conform to the testing consistence

Table 6. Customers' loyalty criteria level (P₃)

P ₃	P ₃₁	P ₃₂	P ₃₃	$\bar{W}_i = \sqrt[3]{\prod_{j=1}^3 r_{ij}}$	$W_i = \bar{W}_i / \sum_{i=1}^3 \bar{W}_i$
P ₃₁	1	4	5	2.7144	0.6823
P ₃₂	1/4	1	2	0.7937	0.1998
P ₃₃	1/5	1/2	1	0.4642	0.1169

$\lambda_{max}=3.0236$ CI=0.0118, according to three-degree matrix RI=0.52 CR=0.023<0.1 conform to the testing consistence

Table 7. Customer relationship criteria level (P₄)

P ₄	P ₄₁	P ₄₂	P ₄₃	$\bar{W}_i = \sqrt[3]{\prod_{j=1}^3 r_{ij}}$	$W_i = \bar{W}_i / \sum_{i=1}^3 \bar{W}_i$
P ₄₁	1	2	3	1.8171	0.5396
P ₄₂	1/2	1	2	1.0000	0.2970
P ₄₃	1/3	1/2	1	0.5503	0.1634

$\lambda_{max}=3.0093$ CI=0.09465, according to three-degree matrix RI=0.52 CR=0.0089<0.1 conform to the testing consistence

Table 8. Customer potential business relationship criteria level (P₅)

P ₅	P ₅₁	P ₅₂	P ₅₃	P ₅₄	$\bar{W}_i = \sqrt[4]{\prod_{j=1}^4 r_{ij}}$	$W_i = \bar{W}_i / \sum_{j=1}^4 \bar{W}_i$
P ₅₁	1	1/2	3	4	1.5651	0.3148
P ₅₂	2	1	5	3	2.3403	0.4703
P ₅₃	1/3	1/5	2	4	0.4273	0.0859
P ₅₄	1/4	1/3	1/2	1	0.6389	0.1355

$\lambda_{max}=4.0158$ CI=0.09465, according to four-degree matrix, RI=0.89 CR=0.006<0.1 conform to the testing consistence

Table 9. Current value target sub-level (C)

C	C ₁	C ₂	$\bar{W}_i = \sqrt{\prod_{j=1}^2 r_{ij}}$	$W_i = \bar{W}_i / \sum_{i=1}^2 \bar{W}_i$
C ₁	1	3	1.7320	0.7500
C ₂	1/3	1	0.5774	0.2500

$\lambda_{max}=2$ CI=0, according to double-degree matrix, RI=0 CR=0 conform to the testing consistence

Table 10. Potential value target sub-level (P)

P	P ₁	P ₂	P ₃	P ₄	P ₅	$\bar{W}_i = \sqrt[5]{\prod_{j=1}^5 r_{ij}}$	$W_i = \bar{W}_i / \sum_{i=1}^5 \bar{W}_i$
P ₁	1	1/3	1/5	1/3	1/6	0.3264	0.0584
P ₂	3	1	1/3	1	1/4	0.7579	0.1173
P ₃	5	3	1	3	1/2	1.8640	0.2803
P ₄	3	1	1/3	1	1/4	0.7579	0.1457
P ₅	6	4	2	4	1	2.8619	0.3983

$\lambda_{max}=5.264$ CI=0.066 RI=1.12 CR=0.066<0.1

Table 11. Customer value target level (v)

V	C	P	$\bar{W}_i = \sqrt{\prod_{j=1}^2 r_{ij}}$	$W_i = \bar{W}_i / \sum_{i=1}^2 \bar{W}_i$
C	1	1/4	0.5	0.2000
P	4	1	2	0.8000

$\lambda_{max}=2$ CI=0, according to double-degree matrix RI=0 CR=0 conform to the testing consistence

Table 12. Weight allocation of evaluation indexes

Target sub-level	Criteria level	Factor level	Weight of the factor level to the criteria level	Weight of the factor level to the target sub-level
C 0.2000	C ₁ 0.7500	C ₁₁ 0.8000	0.6000	0.1200
		C ₁₂ 0.2000	0.1500	0.3000
	C ₂ 0.2500	C ₂₁ 0.6667	0.1667	0.0333
		C ₂₂ 0.3333	0.0833	0.0167
P 0.8000	P ₁ 0.0584	P ₁₁ 0.8572	0.0501	0.0401
		P ₁₂ 0.1428	0.0083	0.0066
	P ₂ 0.1173	P ₂₁ 0.1667	0.0196	0.0157
		P ₂₂ 0.8333	0.0977	0.0781
	P ₃ 0.2803	P ₃₁ 0.6823	0.1912	0.1530
		P ₃₂ 0.1998	0.0560	0.0448
		P ₃₃ 0.1169	0.0328	0.0246
	P ₄ 0.1457	P ₄₁ 0.5396	0.0786	0.0629
		P ₄₂ 0.2970	0.0443	0.0354
		P ₄₃ 0.1634	0.0238	0.0190
	P ₅ 0.3983	P ₅₁ 0.3148	0.1254	0.1003
		P ₅₂ 0.4703	0.1873	0.1498
P ₅₃ 0.0859		0.0342	0.0274	
P ₅₄ 0.1355		0.0540	0.0432	

Table 13. Marking criteria

Excellent	Good	Intermediate	Not good	Terrible
5	4	3	2	1

Table 14. Scores related to customer value

Index	Customer number									
	1	2	3	4	5	6	7	8	9	10
C ₁₁	5	4	5	4	4	4	5	4	5	5
C ₁₂	3	5	4	3	2	5	3	5	4	4
C ₂₁	4	2	4	3	5	4	3	4	5	4
C ₂₂	3	1	3	2	2	3	2	5	4	3
P ₁₁	5	3	3	2	2	1	5	3	4	3
P ₁₂	3	2	2	3	1	4	3	4	5	5
P ₂₁	4	3	4	3	2	3	2	3	5	4
P ₂₂	3	2	5	3	4	4	4	5	3	3
P ₃₁	4	2	4	4	3	5	4	3	4	4
P ₃₂	3	1	4	1	4	4	1	3	4	4
P ₃₃	2	3	1	1	3	3	2	4	2	3
P ₄₁	3	3	1	3	3	4	3	3	5	4
P ₄₂	3	2	3	4	4	2	4	2	3	4
P ₄₃	4	4	4	2	4	4	4	3	4	3
P ₅₁	3	2	2	5	4	2	3	4	4	3
P ₅₂	2	3	4	5	3	4	2	4	2	2
P ₅₃	1	2	3	4	2	4	4	2	2	3
P ₅₄	2	1	4	2	4	5	1	4	3	3
Current value	4.3667	3.5667	4.5167	3.5167	3.7001	4.0667	4.1167	4.2333	4.7667	4.5167
Potential value	3.0022	2.3126	3.3807	3.5995	3.2906	3.7163	3.0416	3.5346	3.4151	3.2289
Customer value	4.0815	3.9082	4.6858	4.3909	3.9060	5.1311	4.0630	5.0173	4.7618	4.5612
Ranking in value	7	8	4	6	10	1	8	2	3	5

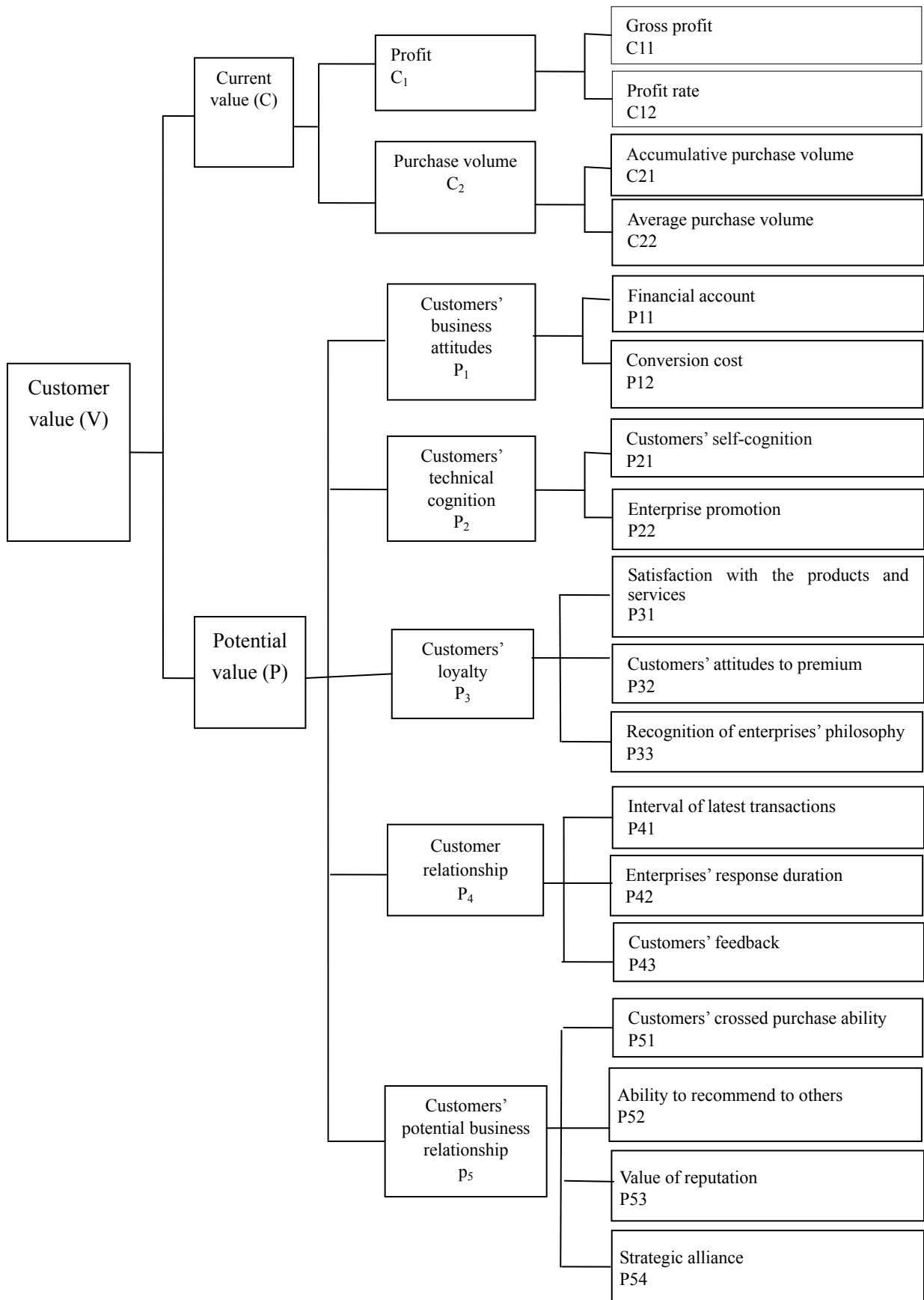


Figure 1. Customer Value Evaluation Model