The Establishment of Sales Growth Model

Based on the Theory of Marketing Force

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Abstract

This text analyses "marketing force" which is the key element deciding the sales quantity and converts the operation of resource combination to marketing force operation, which makes marketing force to resource operation. How to make the best resource combination and how to realize sales growth in marketing circular is the main subject of this text.

Keywords: Marketing force, Sales growth, Model, Marketing circular system

1. Marketing force and its components

1.1 Marketing static circular system

Marketing is not a simple linear problem but a circular system. An enterprise usually performs repetitive production till one product is kicked out by the market or disappears strategically according to the market conditions. It is a circular movement. Now we simulate a complete process in which a middleman participates, building a marketing static circular system as follow.

1.2 Components of marketing force

The marketing force means the sum of all forces that realize the operation of product marketing circular system.

(1) Product force

It is necessary for a product possessing this force. Similar to the engine in a motor, without the engine, the motor will not move or run. The product force is shown in the figure as follow.

Product force, $F0$ in Figure 2, is the match degree of products and demands. The elements that influence the product force include: the product's use value, quality, style, package, maintenance, installation, brand, logistics, and guaranty, the intensity of consumers' demand, and the match degree of the two.

(2) Marketing pushing force

How to make product arrive consumers at the right time by sale channels? We must impose certain external force, namely the pushing force, on the product. It includes: personal sales promotion, channel sales promotion, and ads sales promotion. This force is displayed in Figure 3 as follow.

The power of this force is valued by the profits (or other market indexes) and a product's circular speed. The influencing elements include: product nature (production materials or consumable goods), product attribute (cost price, quality, standardization, added service, and life cycle), pricing strategy, channel character (channel's type, width and depth, and middlemen's competence), enterprise quality (personnel competence, economic strength, talent strength, size, marketing level, and service capability), economic environment, and political environment.

(3) Marketing pulling force

A psychological distance exists in product demands. We impose another external force, namely the pulling force. Its effect is to help consumers overcome the psychological barrier in buying products. It is: consumer sales promotion, seller sales promotion, and media ads. In Figure 4, the pulling force is $F2$.

The influencing elements include: target market element (distribution and size of consumers, consumers' purchase feature, degree of competition, and local economic development), enterprise condition, product feature, economic environment, and political environment.

(4) Repetitive purchase force

Repetitive purchase needs force either. The decisive factor for a consumer purchasing the same product again is the stable quality and the satisfying service. The two factors are from the exterior. It is a kind of "repetitive force". Here, we name the stable quality as the repetitive force F31, and satisfying service as the repetitive force F32 in Figure 5 as follow.

The repetitive force includes five marketing dimensions: understanding, well-known, well reputation, frequent mention, and satisfaction. The influencing elements include: product quality, service level, brands, image, and consumption characteristics.

2. Marketing force ------ sales growth model

Firstly, we introduce a physical model as follow in Figure 6.

A body M moves following the path L. If do not take the quality into consideration, there are only two main factors determining the body's speed. The first is the $\sum F$ and the second is the length of L (suppose it is S). Suppose the circular frequency is Q. Then, $Q=\sum F/S$.

Next introduce this model into the "marketing static circular system" as follow in Figure 7.

In the "marketing static circular system", the product's circular speed determines the growth of sales. Q stands for the sales growth, which is related with the forces and the perimeter S. The relationship is similar to the physical model above, namely:

$Q=\sum F/S$

Forces exert different effects in different enterprises, for different products, at different time, and under different market conditions. Therefore, suppose the weight of each force is K_n, then:

$\sum F=K_0F0+K_1F1+K_2F2+K_3F$ ………………………………… Formula 3.1

S stands for the path of the circular system. It represents the middlemen between products and demands. It is the distance for starting a new cycle by the repetitive force of quality and service.

$S=S0+S1$

S0 ------ psychological distance, S1 ------ spatial distance and time distance.

To sum up, get the conclusion:

$Q=K\times\varepsilon\times[\sum F1/S1+\sum F2/S2+……+\sum Fn/Sn]$

Here, k is the resource coefficient. ε is the channel barrio coefficient. It reflects the impact of channel conflicts on sales growth. Suppose $0<\varepsilon\leq1$.

As no channel conflicts, $\varepsilon=1$;

As channel conflicts exist, $0\leq\varepsilon<1$.

3. Quantitative analysis of marketing force and sales growth

Take two products, A and B, in one brand in an enterprise for example. Before listing in market, analyze their sales growth trend and compare the possibility of their successes. Make quantitative analysis of elements in marketing static circular system

Here suppose the standard for the quantitative analysis of marketing force is:

Unit of force: degree

Evaluate the degree of force: based on market research, adopt a reasonable method and transform the result into data. For example, as for the degree of satisfaction, suppose there are ten degrees from zero to tenth.

Extremely satisfied ------ 9 degree   Better satisfied ------ 8 degree

Well satisfied ------ 7 degree   Satisfied ------ 6 degree

Unsatisfied ------ 5 degree   More unsatisfied ------ 4 degree

Extremely unsatisfied ------ 3 degree

3.1 Analyze the product force of A and B

Suppose the product force of A is F0A, and the product force of B is F0B.

Firstly, test the match degree of A and B's core products with customers' demand for same target consumers. Use M to represent this index and $0\leq M\leq10$. The unit is degree.

Namely: core products ----------------------------------$\rightarrow$ use demands

By means of market research techniques and statistical methods, evaluate the use value of product A and B for target consumers. The result:

MA=7 degree

MB=9 degree

Secondly, test the match degree of A and B's form products and related products with target consumers' psychological needs and potential needs. Use the acceptance degree of consumers to represent this index, $0 \leq R \leq 10$. The unit is degree. Namely:

Form products + related products -----------------------$\rightarrow$ psychological needs + potential needs

The result: RA=8 degree

RB=8 degree

Thirdly, according to the definition of product force F0:

F0=M0+R0 ……………………………………………………… Formula 3.4

This formula represents the relationship between products and demands.

Then, F0A=M0A+R0A=7+8=15 degree

      F0B=M0B+R0B=9+8=17 degree

Fourthly, considering the impact of competition on product force, suppose the competition entrance coefficient is g_0, which means products' differentiation degree and scientific & technological contains in market competition. This coefficient reflects a product's core competence. Suppose $1 \leq g_0 \leq 2$.

As a product is similar to another product in competition (low differentiation) and has lower scientific & technological contains, g_0 ----$\rightarrow$ 1;

As a product is far different from another product in competition (high differentiation) and has higher scientific & technological contains, g_0 ----$\rightarrow$ 2.

Introduce g_0 into Formula 3.4 and get:

F0= g_0 (M0+R0) …………………………………………………… Formula 3.5

Namely, there is a correlation between product force F0 and competition entrance coefficient. The higher the product differentiation and scientific & technological contains, the higher the value of g_0. And the F0 rises correspondingly.

Make an advantage and disadvantage analysis of product A and B with the same product in competition and get the result (no more discussion in this text).

Suppose: gA=1.3, gB=1.5

Then, F0A=gA(MA+R0A)=1.3×15=19.5 degree

F0B=gB(M0B+R0B)=1.5×17=25.5 degree

3.2 Analyze the static pushing force of product A and B

Suppose: Product A's static pushing force is F1A

      Product B's static pushing force is F1B.

Without considering the competition element, analyze the middlemen by means of market research techniques and statistical methods (as follow in Figure 10).

What the middlemen consider is whether it is profitable and the product's circular speed. Without considering the support for promotion, the key for this element is the product's quality and price. By research and analysis we can get this conclusion.

Use M1 to represent the satisfaction to profits. Use R1 to represent the future evaluation on circular speed. Suppose:

M1A=6 degree, M1B=5 degree

R1A=9 degree, R1B=7 degree

Then,

F1A=M1A+R1A=6+9=15 degree

F1B=M1B+R1B=5+7=12 degree

Considering the effect of competition on channels, suppose the channel disturbing coefficient is g_1, which reflects the competition in fields of marketing channels. Suppose $0 \leq g_1 \leq 1$.

As the channels compete severely, g_1 ------ 0;

As there is no competition among channels, g_1 ------1;

The competition can be set by people, such as whether ads are necessary or not and the time and amount, and the percentage of channel promotion to price.

Then, F1= g1(M1+R1) ……………………………………Formula 3.6

So, there is a direct relationship between the static pushing force F1 and the channels promotion. The severer the competition is, the stronger the disturbance is. g_1 is close to 0 and F1 is weaker. Whereas, the competition is weaker and even there is no competition, g_1 is close to 1.

Suppose: g1=0.8

Then, $F1A=g_1(M1A+R1A)=0.8\times15=12$ degree

$F1B= g_1(M1B+R1B)=0.8+12=9.6$ degree

3.3 Analyze the static pulling force of product A and B

Suppose product A's static pulling force is F2A and product B's static pulling force is F2B.

As products meet target consumers, whether customers buy the products finally? The answer is uncertain. As for this question, we get a conclusion by an experiment of researching the static pulling force based on research techniques and statistical methods (as follow).

In Figure 11, there are four psychological barriers in front of products and demands, namely customers' recognition (X1), understanding (X2), preference (X3), and price acceptance (X4) to products.

Namely, F2=X1+X2+X3+X4

Suppose the values of X1, X2, X3, and X4 are between 0 and 10. Get the result by researches and statistical methods (as follow).

F2A=X1A+X2A+X3A+X4A=28 degree

F2B=X1B+X2B+X3B+X4B=32 degree

Considering the effect of competition on the terminal pulling force, suppose the sales terminal competition disturbing coefficient is g_2, which reflects the competition of sales terminal. Suppose $0 \leq g_2 \leq 1$.

As the competition in sales terminal is very hot, g_2 ------ 0;

As there is no competition in sales terminal, g_2 ------ 1;

Get data of competition by researches and analyses. Suppose it is between 0 and 1. Indexes for testing the competition in sales terminal include store display, terminal promotion, and media ads investments.

Introduce sales terminal's competition disturbing coefficient g_2 into the formula:

F2=g_2(X1+X2+X3+X4) ………………………………. Formula 3.7

Suppose g_2=0.4 (competition is severer), get:

$F2A=g_2(X1A+X2A+X3A+X4A)=0.4\times28=11.2$ degree

$F2B=g_2(X1B+X2B+X3B+X4B)=0.4\times32=12.8$ degree

3.4 Analyze the static repetitive force F3 of product A and B

Suppose product A's static repetitive force is F3A and product B's static repetitive force is F3B.

The elements that make customers buy again is the stable quality and satisfying service as follow in Figure 12.

Y1 means the stability of quality, which includes two parts:

Y10 ------ the degree of quality-guaranteed system's rationality and effectiveness, including quality control in purchase and production, final product testing control, and even the quality control concerning suppliers.

Y11 ------ market feedback and customers satisfaction degree.

Y2 means the degree of service satisfaction, which includes two parts:

Y20 ------ the degree of service quality-guaranteed system's rationality and effectiveness, including before-sale service, after-sale service, and in-sale service;

Y21 ------ market feedback and customer satisfaction degree

Namely, F3=Y1+Y2

Therein, Y1=Y10+Y11

　　　Y2=Y20+Y21

Y10 and Y20 are parameters for valuing an enterprise's management system, which directly reflect the management level in the enterprise. Here we still adopt the evaluation method used above.

Y11 and Y21 reflects the market response to a product's quality stability and service level.

By researching product A and B, get the result as follow:

F3A=Y1A+Y2A=(Y10A+Y11A)+(Y20A+Y21A)

Suppose: Y10A=8 degree, Y11A=0 degree

　　　　Y20A=6 degree, Y21=0 degree

Then, F3A=8+6=14 degree

Notice: because the enterprise does not list in market, so Y11A=Y21A=0 degree

F3B=Y1B+Y2B=(Y10B+Y11B)+(Y20B+Y21B)

Suppose: Y10B=8 degree, Y11B=0 degree

　　　　Y20B=6 degree, Y21B=0 degree

Notice: product A and B are in one brand in the enterprise.

Therefore, Y10A=Y10B=8 degree

　　　　　Y20A=Y20B=6 degree

Get: F3B=8+6=14 degree

Considering the effect of competition on the repetitive force, suppose it is the repetitive force disturbing coefficient g_3, which refelcts customers' recoginition to the service level and quality stability of product in competition. Get data by researches and statistical methods. Suppose the scope of g_3: $0 \leq g_3 \leq 1$.

As the product in competition has stable quality and higher service level, g_3 ------ 0;

As the product in competition has poor quality stability and lower service level, g_3 ------1.

Introduce g_3 into the formula, get:

F3=g_3(Y1+Y2) ……………………………………………. Formula 3.8

Suppose g3=0.6, then:

F3A= g_3 (Y1A+Y2A)=0.6×14=8.4 degree

F3B= g_3 (Y1B+Y2B)=0.6×14=8.4 degree

Notice: F3A=F3B=8.4 degree. Because product A and B has the same brand and is operated by the same promotion center, the value is equal.

3.5 Compare the marketing force of product A and B

Suppose product A's marketing force is∑FA and product B's marketing force is ∑FB.

Suppose the weights of each force are respectively:

K0A=0.3, K1A=0.2, K2A=0.2, K3A=0.3

K0B=0.4, K1B=0.2, K2B=0.2, K3B=0.2

To sum up,

∑FA=K0AF0A+K1AF1A+K2AF2A+K3AF3A

　　=0.3×19.5+0.2×12+0.2×11.2+0.3×8.4=13.01 degree

∑FB=K0BF0B+K1BF1B+K2BF2B+K3BF3B

　　=0.4×25.5+0.2×9.6+0.2×12.8+0.2×8.4=16.36 degree

Conclusion:

∑FA-∑FB=13.01-16.36=-3.35 degree

Namely, ∑FB>∑FA

So, product B has bigger marketing force than product A.

3.6 Static quantitative analysis of product A and B's sales growth

Because Q=K×∑F/S

So,

QA=KA×∑FA/SA

QB=KB×∑FB/SB

Suppose KA=KB=1 (resources are same)

SA=SB=SO+S1, here S0=1, S1=3 (wholesaler system), then S0+S1=4 grade

Then,

QA=KA×∑FA/SA=1×13.01/4=3.25 degree/grade

QB=KB×∑FB/SB=1×16.36/4=4.09 degree/grade

Conclusion: QB>QA

The future slaes growth of product B is bigger than that of product A.

If other parameters change, QA and QB will have differnt results.

For example, if product A adopts direct selling, namely S1A=1, and product B adopts a franchiser system, namely S1B=3, and other coefficients do not change, then QA=KA×∑FA/SA.

Becasue SA=S0A+S1A=1+1=2 grade

So, QA=1×13.01/2=6.51 degree/grade

QB=KB×∑FB/SB

Because SB=S0B+S1B=1+3=4 grade

So, QB=1×16.36/4=4.09 degree/grade

Conclusion: if product A adopts the direct selling system and product B adopts the franchiser system, with the precondition of regardless of expenses of sales, the future sales growth of product A will far surpasses that of product B. The former is 1.59 times of the later (QA/QB=6.51/4.09=1.59).

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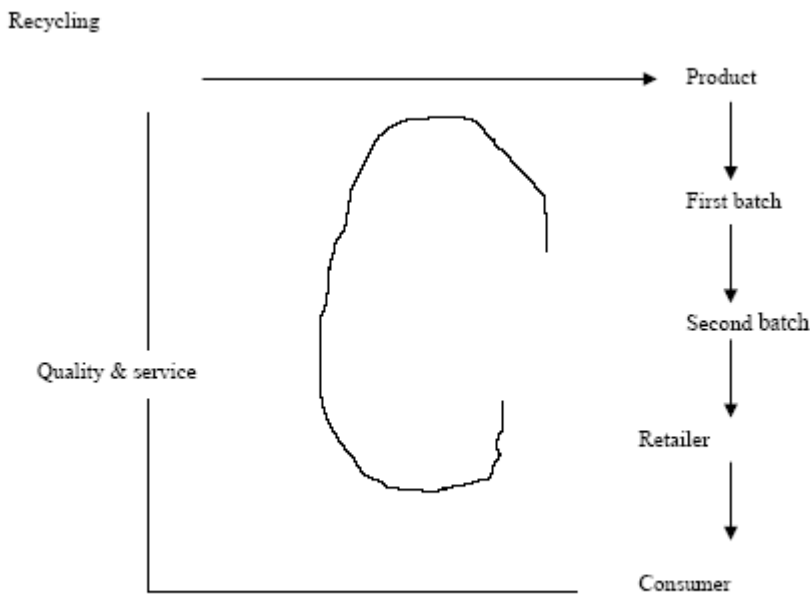
Figure 1. Marketing Static Circular System

Figure 2.

Figure 3.

Retailer

Pulling force F2

Consumer

Figure 4.

Quality

Service

Product

Figure 5.

ΣF

L

M

Figure 6.

Repetiti
ve force
F3

Product

Product
force F0

A

B

First batch

C

Quality & service

Second batch

Pushing
force F1

Retailer

D

Pulling
force F2

Consumer

Figure 7.

Quantitative
analysis   of
satisfaction

0   1   2   3   4   5   6   7   8   9   10

Figure 8.

Quantitative
analysis   of
acceptance

0   1   2   3   4   5   6   7   8   9   10

Figure 9.

Product   Demand

Quality   Price   Profit   Turnover
Figure 10.

Product ———————————————▶ Demand

X1   X2   X3   X4

Recognition   Understanding   Preference   Price acceptance of

Figure 11.

Products ———————————————▶ Demands

Y1 Stable quality   Y2 Service

Figure 12.