

Marketing Research for Motorola Company

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Abstract. Considering about the rising market of global communication, Motorola is stumbling through a hard time in recent years and is still going downhill. Facing this problem, it is quite important to find why the company market share continually decrease? What causes the poor performance? It is necessary to find the main issue, which leads to downhill of the company. This paper is going to do a research for Motorola company, which includes problem identification, research design, pilot fieldwork, research results, and conclusions.

Background

Founded in US 1928, Motorola is a global communication leader. In 1987, Motorola established its office in Beijing. By the end of 2008, it had become one of the biggest foreign investors in China, mainly selling mobile devices, (Motorola, 2010). During past 21 years, Motorola has witnessed the evolution of wireless communications together with many Chinese mobile phone users (Wei, 2008). China is the world's largest mobile market with 583 million mobile phone users (Einhorn & Crockett, 2008). The compound annual growth rate of the market in 2008-2013 is predicted to be 16.4% (MPIP, 2009). However, contrasted to the rising market, Motorola is stumbling through a hard time in recent years and is still going downhill. Figure 1 shows that in 2007, its market share dropped from 21% to 10% (Business week, 2010). The decrease in mobile phone market share has stuck the performance of Motorola's annual revenue heavily, with a drop from \$42,847.0 million to \$30,146.0 million (MPIP, 2009).

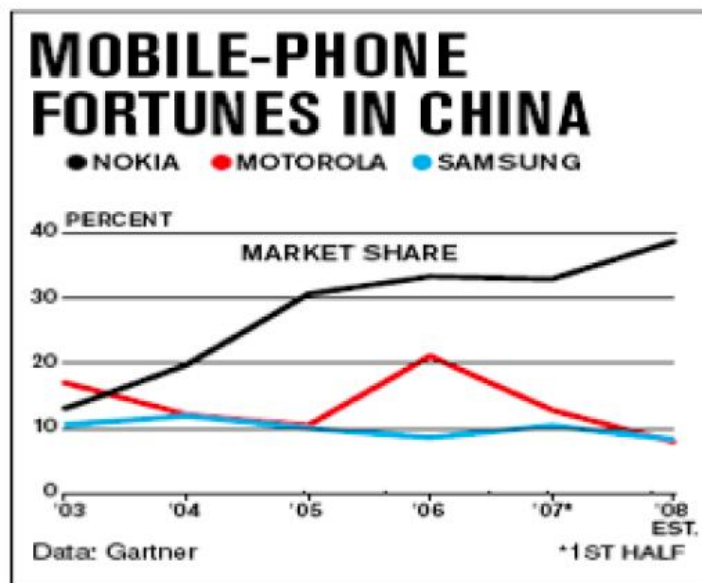


Figure 1. Mobile-phone Fortunes in China

Problem Identification

Based on some secondary data from Internet, there are four major problems identified for Motorola, which related its marketing mix: product, price, place and promotion.

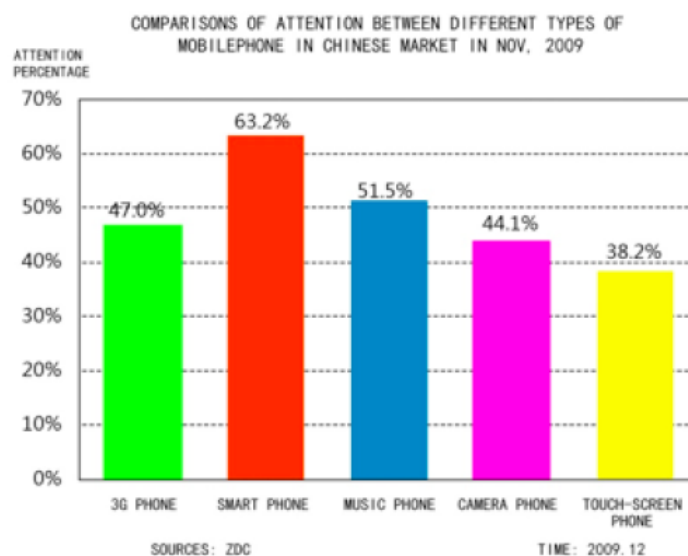
Product

Firstly, compared to its major competitors, Motorola's mobile phone portfolio is thinner and launch speed of new product is slower. According to the statistics of China Center for Information Industry Development Consulting (2010), Motorola released thirteen new mobile phones in 2007, far less than its competitors. Its 'hit product' V3 released in 2004 is still in selling today. Yang, analyst at BDA China Ltd. in Beijing (Wei, 2008) said that the company failed to introduce more innovations after it started marketing its hot-selling RAZR series mobile phone in August 2004. Although Motorola has realized this problem and been trying to introduce more innovations, figure 2 shows that it still falls far behind its competitors, such as Nokia and Samsung.



Source from: <http://zdc.zol.com.cn/>

Figure 2. Comparisons of Product Amounts and Attention



Source from: <http://zdc.zol.com.cn/>

Figure 3.

Secondly, it seems that Motorola failed to catch main trend in the market. That is to say, its R&D

department is disjunctive to its marketing department. In 2009, with I-phone 3G being launched into Chinese market, the smart phone industry and 3G-network phone were extremely heated (Figure 3). However, Motorola did not seize this moment. Except for its first 3G-network smart phone A3100, there is no other product caters to this market: its ZN series (released in May) is neither smart phone, nor 3G-network phone; Moto Aura, a luxury in mobile phone industry priced over 10,000 RMB, is its final show of this year.

Price

Price positioning is another problem. According to online research, Motorola usually give an unreasonable high price for its high-end product, and then making frequent huge price cut; this action somehow decreases customer's expectations. When V3 entered into the market in September 2004, the price of it was above 6,000 RMB, and then it dropped to about 4,000 RMB within half a year, and it was sold at a little more than 1,000 RMB by the end of 2006. Another example figure 4 shows that Motorola's milestone vs. Nokia's N97 both of which are the newly released products in 2010 of very high popularity. Within 2 months, the price of milestone has fallen from more than 2,500 RMB to less than 2,400 RMB, while N97 only has a 50 RMB cut. Such huge price cut arouses discontentment from customers who bought it at high price. And it also leads people to doubt the real value of the product. As Dekimpe, Steenkamp Mellens and Abeele (1997) stated, 'a critical issue for the continued success of a firm is its capability to retain loyal customers and well established brand image', losing its capability to maintain its brand trust, brand loyalty and brand image. Motorola not only lose its market share, but also may lose its chance for rejuvenation.



Source from <http://zdc.zol.com.cn/>

Figure 4 Price of Nokia N97 and Moto Milestone in Beijing

Place

The distribution channels of Motorola are quite complicated. Motorola sells cell phone depends on way of multiple-tier agency since 1995 (Zhang, 2003). There are four tiers for product distribution: national and regional agents, local wholesalers and distributors, retailing stores, and consumers. Each tier has its own promotion and pricing strategy to attract consumers. Therefore the stable pricing system is broken by the virulent price competition. Another serious problem in distribution is unethical cross-boundary selling which means the regional distributors sell products to the area which is not belong to them with lower price to gain more selling bonus from Motorola. As the result, the steady and harmony of market can be easily broken.

Promotion

The decrease of market share is also caused by inadequate promotion activities. Compared with its major competitors such as Nokia and Samsung, Motorola paid less attention on this aspect. Advertising is insufficient which results unawareness of consumers of new product launching. Another defect is the failure to emphasize on product's outstanding features. For example, in the advertising of 'Ming', its unique function 'name card scanning' was not highlighted.

Research Design

Types of Research Design

In order to find out how Chinese consumers perceive Motorola's Mobile phone, exploratory research design and descriptive research design are used in this report.

Exploratory Research Design

Since Motorola was a leading company and has long history in the field of mobile phone, the data online is credible and accurate. As a result, it will be convenient for researchers to identify the problems by collecting secondary data. However, secondary data cannot be used for getting attitudinal information. Therefore, primary data is also needed. The exploratory research design focuses on not only secondary data but also primary data (Shiu et al., 2009), which mean it can be a good choice for Motorola to find out its problems.

Descriptive Research Design

Unlike exploratory research design, descriptive research design uses a set of scientific methods and procedures to collect raw data and create data structures that describe the existing characteristics of a defined target population or market structure (Shiu et al., 2009). It can help us to find out the exact problems lead to the decrease of Motorola's share in Chinese mobile phone market and the general solution to regain the market share. By using descriptive research design, researchers can get the overall information like, who are the target consumers of Motorola? What is the frequency for Motorola produce a new product? Therefore, descriptive research design is also an appropriate choice (Shiu et al., 2009).

Research Method

Qualitative Research Method

Qualitative research method is used to gain preliminary insights into decision problems and opportunities (Shiu et al., 2009). Since Motorola's problems need to be identified and deeply analyzed, focus group can be the best way to get data. Unlike other qualitative methods, focus group's success heavily relies on the group dynamics (Shiu et al., 2009), which helps participants to join in the interactive and spontaneous discussion with the help of moderators. During the focus group, participants can easily discuss in detail about their attitude and idea about Motorola and the experience of having a Motorola mobile phone or one of other brands (Shiu et al., 2009). According to the information they provide, the 4P problems can be defined and redefined, and the hidden information of Motorola can be figured out (Shiu et al., 2009). Nevertheless, the information they provide is unable to distinguish small difference, and the information collected from a focus group is not representative. Therefore, using descriptive research design is necessary.

Quantitative Research Method

Quantitative research method is a compensatory way to help Motorola solve their problems. It is widely known that the one of the features of quantitative research is being representative with covering a large sample size of population. In the case of Motorola, survey is chosen to collect detailed and overall information about Motorola and assess the effectiveness of its marketing strategies on actual market place behaviours (Shiu et al., 2009). What is more, with advanced statistical analysis, the data from survey can be used to identify hidden pattern and trends (Shiu et al., 2009). The survey conducted in this research is a combination of telephone survey and email survey.

Instruments

Questionnaire

The questionnaire mainly focuses on the questions of Motorola's 4P problems. It includes five main types of questions: several classification questions of general information are designed; Chinese consumers' habits to purchase a mobile phone are investigated; several main factors which are important for people to choose a mobile phone are evaluated; comparison of seventeen main attributes of mobile phones of both Motorola and its competitors are designed; the same seventeen

characteristics of Motorola's are scored according to the importance. In this questionnaire, questions in scale measurement, multiple choices questions and questions for ranking are included.

List of Questions for Focus Group

In order to get detailed attitudinal information about Motorola's products, price, place and promotion, six the questions are designed for focus group. The first two questions are about information of appearance and the function of Motorola. Then two price-related questions are designed, which consists of Motorola's positioning of the price and the fluctuation of its price. Finally, there are two brief questions about promotion and place strategies.

Sampling Technique

Sampling involves selection of a small number of elements from a larger target group and expecting the accurate judgements about the larger group according to information from the small group (Shiu et al., 2009).

Target population should be defined for making an inference (Shiu et al., 2009). For this survey, target population should be all the mobile phone users in Chinese market, because they are both current and potential consumers of Motorola. Then for a list of all eligible sampling units as a sampling frame, a telephone directory should be bought from a specialized company (Shiu et al., 2009). Probability sampling design should be selected rather than non-probability, because: (1) the result of probability sampling is more accurate, reliable, and representative; (2) more complex sampling technique should be used to make error measurable for project scope is national; (3) Motorola has relatively enough time and resource budget. As to specific sampling technique, cluster sampling can be chosen, for its cost-effectiveness and ease of implementation (Shiu et al., 2009). Meanwhile, it is realistic to choose several representative geographic designations as clusters (Shiu et al., 2009). All the regions can be clustered into three groups: southern region, central region and northern region. Then, sampling units in each cluster should be selected, which are cities of Guangzhou and Chengdu for southern region, Shanghai and Xian for central region, and Beijing and Shenyang for northern region. The next step is doing random selecting in each city on the basis of telephone directory. After getting in touch with the sampling members, an email including questionnaire will be sent to each of them.

Sample Size

For using probability sampling approach, random sample size is necessary in this research project. The 'proportion approach' can be used to calculate the sample size, in this situation estimates of a population proportion are of concern, and standardized formula for calculating the required sample size would be:

$$n = (Z_{B,CL}^2) \left(\frac{[P \times Q]}{e^2} \right) \quad (\text{Shiu et al., 2009})$$

$Z_{B,CL}=1.96$, the standardized z value of 95% confidence level,

$$P = \frac{\text{Number of Mobile - phone Users}}{\text{Whole Population}} = \frac{833300 \text{ thousand}}{1334740 \text{ thousand}} = 62\%$$

$Q=1-P=38\%$, the estimated proportion who are not users of mobile-phone in the target area

$e=\pm 5.0\%$, the acceptable critical level of error

$$n = 1.96^2 * 0.62 * 0.38 / 0.05^2 \approx 362$$

Such is the final sample size. However, the initial sample size is larger than the final sample size desired (Shiu et al., 2009). The formula of initial sample size is:

$$\text{Initial Sample Size} = \frac{\text{Final Sample Size}}{ERR * EIR * ECR} \quad (\text{ERR-expected reachable rate, EIR- expected}$$

incidence rate, and ECR- excepted completion rate)

On the basis of secondary data and method of the survey (Guo, 2009), the three rates can be estimated as ERR=83%, EIR=60%, ECR=75%

In a word, the initial sample size is

$$N=362/ (0.83*0.6*0.75) \approx 970$$

Qualitative research using in focus group doesn't have much representativeness. While randomization is important in quantitative surveys, it is not essential in qualitative research (Shiu et al., 2009). Therefore, judgement approach can be used in focus group selection. Focus groups can also be chosen from 6 cities, and each group includes 10 group members, for optimal number of participants in focus group is from eight to twelve (Shiu et al., 2009). Based on the criteria of selection of participants, people familiar with variety mobile phones are preferred to invite.

Pilot Fieldwork

Brief Description

In the part of pilot fieldwork, two methods of questionnaire survey and focus group are used. We adopted convenience approach to select 42 persons for the questionnaire survey and 12 persons for the focus group.

Analysis Result

Based on the questionnaire survey, the result of analysis is shown as the following:

Table 1: Frequency of the Current Mobile Phone Brand

Current Brand					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Motorola	2	4.8	4.8	4.8
	Nokia	13	31.0	31.0	35.7
	Samsung	5	11.9	11.9	47.6
	LG	1	2.4	2.4	50.0
	HTC	2	4.8	4.8	54.8
	Apple	6	14.3	14.3	69.0
	Lenovo	3	7.1	7.1	76.2
	Sony Ericsson	5	11.9	11.9	88.1
	Others	5	11.9	11.9	100.0
	Total	42	100.0	100.0	

From the frequency data, Motorola has only 4.8% market share, which is much lower compared with other competitors.

Table 2: Preference of the Factor Selection in Mobile Phone

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Appearance	42	1	5	2.83	1.031
Performance	42	1	5	3.74	0.967
Quality	42	1	5	3.76	1.064
Function	42	1	5	4.48	.576
Price	42	2	5	4.12	.650
Brand awareness	42	2	5	3.36	1.114
Promotion	42	1	5	2.98	.937
Distribution	42	1	5	1.24	.804

From the attitude survey statistic, the mean value, which is above '3' shows 'it's important' in general consideration. Moreover, the 'function' and 'price' (with the value above 4) play the most important roles in mobile phones selections.

Table 3: Frequency Statistic of Function Selection

Function Selection					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Business	16	38.1	38.1	38.1
	Game	2	4.8	4.8	42.9
	Music	3	7.1	7.1	50.0
	Fashion	10	23.8	23.8	73.8
	Camera	1	2.4	2.4	76.2
	Simple	9	21.4	21.4	97.6
	Others	1	2.4	2.4	100.0
	Total	42	100.0	100.0	

Additionally, the frequency of 'business' mobile phone selection is the highest among all, which provides a valuable suggestion that Motorola can target a specific segment and mainly promote 'business' mobile phone.

Table 4: Frequency Statistic towards the attitude of Price Fluctuations

Price fluctuations					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Below 10%	9	21.4	21.4	21.4
	10%-30%	27	64.3	64.3	85.7
	31%-50%	5	11.9	11.9	97.6
	Above 50%	1	2.4	2.4	100.0
	Total	42	100.0	100.0	

From the frequency data, consumers can rarely accept the price fluctuations above 30%. Based on the secondary data, Motorola has to change its price strategy and meet this requirement.

Table 5: Frequency Statistic of Best-performance Brand in Each Attribute

Factors	Best-performance Brand	N
Design	Apple	28
Screen	Samsung	16
Pixel	HTC	20
Audio & Video	Sony Ericson	19
Size	Motorola	15
Operating system	Apple	22
Hardware	HTC	18
Durability	Nokia	30
Battery	Nokia	25
Price	Lenovo	17
Innovation	Apple	26
Varieties	Nokia	20
Advertisement	Samsung	15
Promoting activities	Samsung	18
Distribution	Nokia	20
After-sale service	Sony Ericson	17
Operator cooperation	Nokia	24

Compared with other competitors, Motorola only has the dominant position in term of the ‘size’ while Nokia and Apple own more strength. This illustrates Motorola occupies inferior position in mobile phones competition.

Table 6: Relationship Analysis between Attributes and Overall Opinion

Factors		System	Durability	Innovation	Operator	Overall
System	Pearson	1				
	Correlation					
	Sig. (2-tailed)					
Durability	N	42				
	Pearson	.489(**)	1			
	Correlation					
Innovation	Sig. (2-tailed)	.000				
	N	42	42			
	Pearson	.513(**)	.556(**)	1		
Operator	Correlation					
	Sig. (2-tailed)	.000	.000	.000		
	N	42	42	42		
Overall	Pearson	.388(**)	.381(**)	.282(**)	1	
	Correlation					
	Sig. (2-tailed)	.000	.000	.000	.000	
	N	42	42	42	42	
	Pearson	.442(**)	.482(**)	.572(**)	.199(**)	1
	Correlation					
	Sig. (2-tailed)	.000	.000	.000	.000	
	N	42	42	42	42	42

The result shows the level of significances of only four attributes (Operating system, Innovation, Operator cooperation and Durability) are at $p < 0.05$, which illustrates these four attributes have a strong and positive relationship with the overall opinion among the whole 17 attributes. In a word, these four attributes influence consumers’ evaluation about Motorola consumption to a great extent.

Finally, some improvement suggestions can be given to Motorola Corporation, which are:

(1) From aspects of 4P, 'product' and 'price' should be first and most important problems to be solved.

(2) For product part, consumers pay a lot attention to function; besides, Motorola should improve its operating system to gain advantages in popular smart phone market nowadays, and speed up the update of products.

(3) For price part, Motorola needs to solve the problem of many fluctuations and establish the stable image.

In the procedure of focus group, much more detailed information and advices of improvement on 4P problems were collected.

Conclusion

From the analysis of secondary data, there are four main research problems identified originally. However, after pilot field-work, problems related to product innovation and pricing setting are the most important two, which highly concerned by customers.

In research design, there are several problems occurring in the project: when calculating the sample size, the ERR, EIR and ECR is estimated according to the secondary research, so the initial sample size cannot be highly accurate.

Furthermore, except for the questionnaire, there is something wrong with the organization of time and questions answer process in focus group, which results in the time waste. Problems identified in the pilot fieldwork are helpful to improve the quality of the whole research.

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