Chapter 8
Applications in Business Organizations

8.1 Satisfaction Analysis for a Commercial Bank

8.1.1 Research Background and Survey Details

Service quality can be seen as one of the main determinants of customer satisfaction, which in turn influences purchase intentions (Spreng and Mckoy, 1996; DeRuyter et al., 1997; Bloemer et al., 1998). This is of main interest, particularly in the banking sector, where the highly competitive market has caused the banking system to undergone drastic changes. Institutional changes, creation of extensive product/service portfolios, major changes in the ownership status, heavy use of modern technology and globalization of the banks activities are only some examples of these changes identified in the banking sector (Gortsos, 1998). Due to this heightened competition, bank service quality rises as an important factor that will affect the relevant market shares and profitability in the banking sector (Anderson et al., 1994; Hallowell, 1996; Caruana and Pitt, 1997).

Furthermore, to keep and advance their competitive edge, modern business organizations should better understand and profile their customers. This is more imperative in the banking sector, where the variety of the products and services offered (loans, deposits, credit cards, leasing, factoring, etc.) concern particular groups of customers. Banks need to individualize products and to approach every customer in an individual way. This is usually referred to as "mass customization" (Davids, 1986). Customization requires, however, a profound knowledge of customers and their needs and habits. Such knowledge would help companies to find answers to questions such as:

- Which customers would be interested in certain types of products and services?
- How would a product or service be designed so as to satisfy the needs of an individual, or a group of customers?

E. Grigoroudis and Y. Siskos, *Customer Satisfaction Evaluation*, International Series in Operations Research & Management Science 139, DOI 10.1007/978-1-4419-1640-2_8,
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- How effective is the marketing on specific customers?
- Which attributes suggest that a certain customer cluster should be (or should not be) targeted with a new product or service?

The presented satisfaction survey concerns one of the leading banking organizations in Greece. The survey took place in two different bank branches in the city of Chania. The survey was conducted within the period July-September 1998 (for more details see Grigoroudis et al., 1999a; Mihelis et al., 2001; Siskos et al., 2001a).

Final input data consist of 303 questionnaires: 122 from store A and 181 from store B. Moreover, 160 private customers and 95 companies have been participated in the survey (the primary relation with the bank has not been identified for the rest of the sample). A more detailed presentation of the general profile of the sample is presented in Figures 8.1 and 8.2: Figure 8.11 presents the profession of the private customers, while Figure 8.2 shows the activity sector for the business segment. The observed distributions show a well-balanced sample.

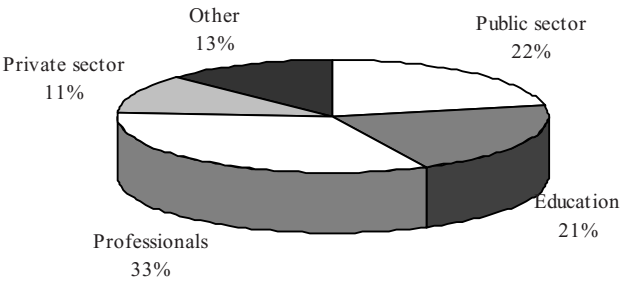

Fig. 8.1 Profession of private customers segment

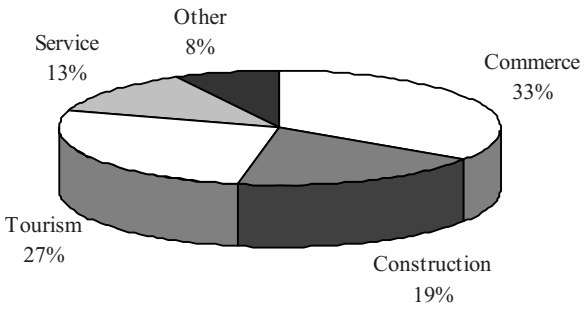

Fig. 8.2 Activity sector for the business segment

The assessment of a consistent family of criteria representing customer satisfaction dimensions is one of most important stages of the MUSA methodology. This assessment can be achieved through an extensive interactive procedure between the analyst and the decision-maker (business organization). In any case, the reliability of the set of criteria/subcriteria has to be tested in a small indicative set of customers.

The hierarchical structure of customers' satisfaction dimensions is presented in Figure 8.3 and it shows the set of criteria and subcriteria used in this survey. The main satisfaction criteria consist of:

- *Personnel of the bank*: This criterion includes all the characteristics concerning personnel (skills and knowledge, responsiveness, communication and collaboration with customers, friendliness, etc.).
- *Products*: This criterion refers mainly to the offered products and services (variety, refund, cost, special services, etc.).
- *Image of the bank*: Credibility of the bank (name, reputation), technological excellence, as well as ability to satisfy future customers' needs are included in this criterion.
- *Service*: This criterion refers to the service offered to the customers; it includes the appearance of the stores, the waiting time (queue, telephone, etc.), the complexity of service processes and the information provided (informing customers in an understandable way, explaining the service and other relevant factors, informing for new products, etc.).
- *Access*: Network expansion of the bank, branches location, as well as observed troubles in the service system (strikes, damaged ATMs, etc.) are included in this criterion.

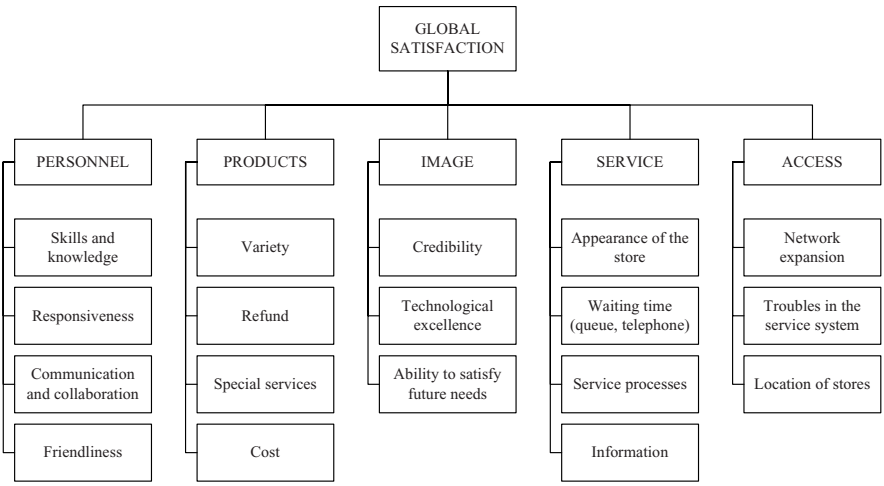

Fig. 8.3 Hierarchical structure of satisfaction dimensions

8.1.2 Overall Satisfaction Analysis

Customers seem to be quite satisfied from the provided service, given that the average global satisfaction index has a very high value (82.1%). Moreover, criteria satisfaction analysis shows that customers are quite satisfied according to the criteria of "Access" and "Personnel", while lower satisfaction indices appear for the rest of the criteria (63.5%-74.7%), as Table 8.1 displays. The most important criterion, with a significant importance level, seems to be "Access". This can justify the high value of the global satisfaction index. Customers are more satisfied according to the most important criterion and less satisfied on the dimensions that seem to play a less important role to their preferences.

Table 8.1 Overall satisfaction results

Criteria	Weight (%)	Average Satisfaction Index (%)	Average Demanding Index
Personnel	15.0	80.6	−0.47
Products	10.3	63.5	−0.23
Image	13.1	74.7	−0.39
Service	11.8	69.3	−0.32
Access	49.8	87.7	−0.68
Overall	-	82.1	−0.42

The added value curve, presented in Figure 8.4, shows that customers do not seem demanding according to their preferences. The majority of customers have an added value greater than 87%. This added value level seems to be the most critical satisfaction index, as shown in Figure 8.5, which presents the percentage of customers having a value lower than or equal to a particular level (this is a form of a cumulative distribution function of customer values based on the satisfaction function of Figure 8.4).

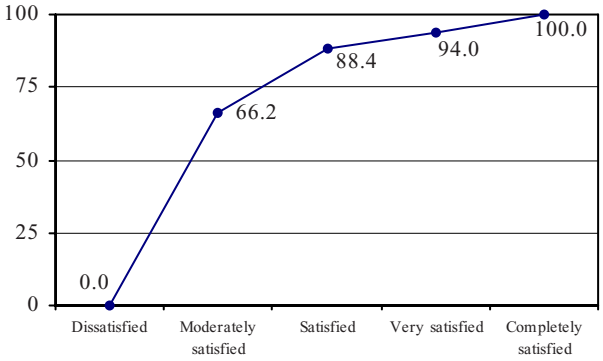

Fig. 8.4 Overall satisfaction function (added value curve)

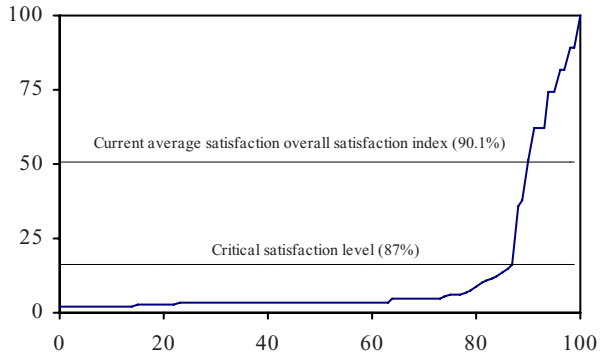

Fig. 8.5 "Fragile" customers curve

The action diagram shows that there are no critical satisfaction dimensions requiring immediate improvement efforts, as presented in Figure 8.6. However, if bank wishes to create additional advantages against competition, the criteria with the lowest satisfaction index should be improved. These improvement efforts should be focused on products, service, and bank's image.

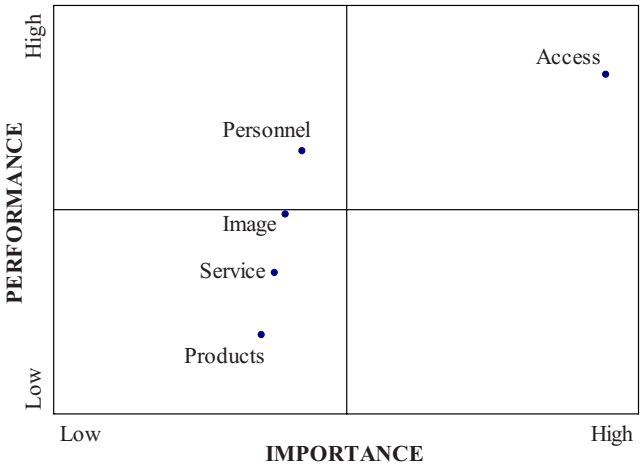

Fig. 8.6 Action diagram for main satisfaction criteria

8.1.3 Criteria Satisfaction Analysis

The analysis of the partial satisfaction dimensions allows for the identification of the criteria characteristics that constitute the strong and the weak points of the bank. The detailed results of Table 8.2 reveal the following:

- Personnel's friendliness constitutes a significant competitive advantage of the bank. This result is considered prospective, since the survey took place in a provincial Greek city.
- Large improvement margins appear for cost and special financial services. This generic result, referring to the low satisfaction level of cost criterion, holds for the total bank sector, since customers have the impression that they are often overcharged. On the other hand, the fact that the satisfaction level with respect to the specialized services is low is particularly worrying. It seems that the bank is not in the position to follow the current evolution of the sector's products.
- The customers are quite satisfied with the ability of the bank to satisfy their future needs. However, it should be noted that the criterion of technological excellence has a quite low satisfaction index. It is worthwhile to mention that the bank has already decided to implement a program for the total technological upgrade of the stores.
- The low satisfaction level with respect to service is mainly due to the subcriteria of the provided information and the waiting time.
- Bank should also pay particular attention to the troubles that are observed in the service system (equipment malfunctions, strikes, etc.), given that there are margins for improvement. Although the satisfaction level is rather high, the importance of this subcriterion is high as well.

Taking also into account the previous remarks, it is possible to determine the improvement priorities of the bank that should focus on the following (see also Grigoroudis et al., 1999a; Mihelis et al., 2000; Siskos et al., 2001a): special services, information provided to the customers, and waiting time.

8.1.4 Concluding Remarks

The presented application highlights the necessity of a permanent customer satisfaction barometer, since customer satisfaction is a dynamic parameter of the business organization. Changes in the current market can affect customer preferences and expectations (e.g. some satisfaction dimensions may become critical in the near future, if customers give more importance to them). The main advantages of a permanent customer satisfaction measurement system in the examined banking organization may be summarized in the following:

Table 8.2 Criteria satisfaction analysis

Criteria	Subcriteria	Weight (%)	Average Satisfaction Index (%)	Average Demanding Index
Personnel	Skills and knowledge	12.2	75.7	−0.34
	Responsiveness	19.6	79.6	−0.59
	Communication-collaboration	12.9	75.1	−0.38
	Friendliness	55.3	87.8	−0.86
Products	Variety	28.0	82.0	−0.57
	Refund	34.8	76.6	−0.77
	Cost	13.2	33.4	0.39
	Special services	24.0	29.9	0.65
Image	Credibility	14.9	78.7	−0.46
	Technological excellence	9.7	74.2	−0.18
	Ability to satisfy future needs	75.3	89.8	−0.89
Service	Appearance of the stores	15.6	76.6	−0.49
	Waiting time	13.2	64.6	−0.39
	Service processes	56.6	86.0	−0.86
	Information	14.6	68.4	−0.45
Access	Network expansion	35.6	85.6	−0.70
	Troubles in the service system	31.1	84.0	−0.74
	Location of stores	33.3	87.5	−0.66

- The bank will have the ability to analyze customer behavior for different regions in the country, taking into account their special characteristics.
- An interior benchmarking system can be established, based on customer satisfaction evaluation in each branch. In this way, the most "weak" stores of the bank may be identified and improved (see application in section 8.5).
- Competition analysis will be performed for different regions of the country.
- The effectiveness of marketing plans will be evaluated through customer satisfaction measurement.
- The establishment of a motivating system for employees may be directly related to customer satisfaction measurement. In this way, productivity may be improved and efficiently measured.

A permanent customer satisfaction barometer can assist Total Quality Management concepts in every business organization (Edosomwan, 1993). Moreover, the focus on total customer satisfaction should be integrated into the accepted management process and the culture of the organization.

8.2 Customer Satisfaction in the Greek Ferry Industry

8.2.1 Preliminary Analysis

The presented application concerns customer satisfaction analysis in the Greek coastal shipping industry in 1998. A key factor for understanding market conditions during the period that satisfaction survey took place is the system of "cabotage", whereby the country's own ships have a protected market position in Greek coastal traffic. This particular characteristic is mainly responsible for the low competition observed during this period.

The implementation of the MUSA method includes a preliminary customer behavioral analysis in which, the assessment of the set of satisfaction criteria follows the principles presented in sections 4.1 and 7.3.2.

In this particular case, the hierarchical structure of customer satisfaction criteria/subcriteria is presented in Figure 8.7, and customers were asked to evaluate/express their satisfaction according to the following criteria:

- *Credibility of the company*: Safety and duration of trip, timetable frequency, delays.
- *Prices*: Ticket, vehicle, bar, restaurant and special discounts.
- *Service*: Personnel's behavior, politeness, service time, etc.
- *Additional service*: Electronic booking system, customer's opinion for mini market, video games, disco, etc.
- *Comfort and service quality*: Cleanliness, ampleness of cabins and common use areas, quality of food.

The satisfaction survey concerns one of the major companies in Greece, and took place in two different ferry links, which represent company's domestic routes. The survey was conducted during winter 1998 and a random sample of passengers was used. Data collection was completed on board, where more than 5,000 questionnaires were distributed to passengers. Final input data consist of 605 questionnaires (the corresponding response rate is approximately 12%). Further information for the details of the survey is given by Grigoroudis et al. (1999b) and Siskos et al. (2001a).

8.2.2 Overall Satisfaction Analysis

The results of the analysis show that there is a significant potential for further improvement, since the average global satisfaction index is less than 80%. It is important to note that the total set of satisfaction criteria, with the exception of company's credibility, have lower satisfaction levels compared to the global index of the total clientele. According to this, the following remarks can be made (Table 8.3):

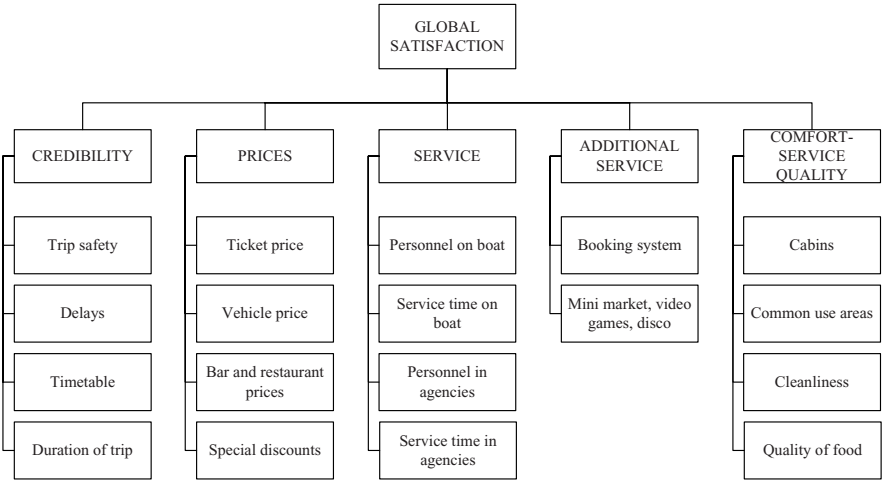

Fig. 8.7 Hierarchical structure of satisfaction dimensions

Table 8.3 Criteria satisfaction results

Criteria	Weight (%)	Average Satisfaction Index (%)	Average Demanding Index
Credibility	62.3	94.4	0.87
Prices	8.6	22.4	0.07
Service	9.9	62.1	−0.19
Additional service	9.3	58.2	−0.14
Comfort-Service quality	9.9	61.3	−0.19
Overall	-	79.7	−0.50

- The global satisfaction index is quite satisfactory due to the high performance of the company according to the credibility criterion (average satisfaction index 94.4%), which is the most important satisfaction dimension (weight 62.3%).
- The customers are not satisfied from company's prices (average satisfaction index 22.4%), although they do not consider important this particular criterion (weight 8.6%).
- The rest of the criteria have a low level of importance for the customers (9-10%), while the performance of the company is rather modest (average satisfaction indices 58-62%).

Regarding the improvement efforts of the company, an inspection of the action diagram (Figure 8.8) reveals that there is no particularly critical satisfaction dimension calling for an immediate improvement. Nevertheless, almost all criteria except credibility could be characterized as potentially critical satisfaction dimen-

sions, given that they are very close to the critical quadrants of the corresponding diagrams. The improvement priorities should be focused on:

- the company prices, given that the average satisfaction index is particularly low, while the customers are not demanding to this criterion, and
- the criteria of the provided services (service, additional service, service quality) where the satisfaction indices allow significant margins for improvement.

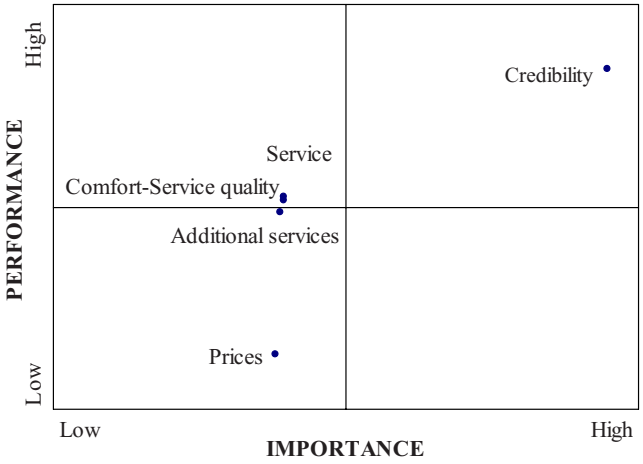

Fig. 8.8 Action diagram for main satisfaction criteria

The criteria satisfaction analysis confirms the previous findings. In general (excluding the subcriteria of prices), the company performance is quite high in these satisfaction dimensions, which are considered important by the customers. This fact justifies the satisfactory level of the distinctive satisfaction indices. On the other hand, however, there are several areas where the company has significant margins for improvement.

The detailed results of Table 8.4 indicate the following points:

- "Trip safety" and "Delays" criteria are the main competitive advantages of the company credibility. Although the customers are not quite satisfied from the duration of trip and company's timetable, they do not seem to consider these particular satisfaction dimensions of high importance.
- Company performance is particularly low in all subcriteria of prices. It is remarkable that the satisfaction dimensions with the higher importance (ticket price, vehicle price, and bar-restaurant prices) have the lower average satisfaction indices.
- The customers are satisfied from the personnel on boat. However, the average service time on boat allows margins for further improvement. On the other hand, the satisfaction level of the provided service in agencies is rather non-

satisfactory although the customers do not give significant importance to the particular subcriteria.

- Both the cleanliness and the booking system constitute competitive advantages of the company, given that they are the most important dimensions holding also the higher levels of importance.

Table 8.4 Subcriteria satisfaction analysis

Criteria	Subcriteria	Weight (%)	Average Satisfaction Index (%)	Average Demanding Index
Credibility	Trip safety	53.9	95.5	−0.85
	Delays	28.0	90.0	−0.57
	Timetable	9.5	58.4	−0.16
	Duration of trip	8.6	32.5	0.07
Prices	Ticket price	25.0	8.8	0.68
	Vehicle price	25.0	4.0	0.68
	Bar and restaurant prices	40.7	6.5	0.80
	Special discounts	9.3	42.7	0.14
Service	Personnel on boat	67.8	90.5	−0.88
	Service time on boat	9.6	59.7	−0.17
	Personnel in agencies	12.6	72.6	−0.36
	Service time in agencies	10.0	64.4	−0.20
Additional service	Booking system	68.8	95.6	−0.85
	Mini market/Games/Disco	31.2	42.5	0.06
Comfort-Service quality	Common use areas	9.7	36.0	0.18
	Cabins	11.1	33.5	0.28
	Cleanliness	66.4	98.2	−0.88
	Quality of food	12.8	43.9	0.22

The improvement efforts of the company should be focused on the following groups of satisfaction dimensions in order of precedence:

- The ticket price (passenger, vehicle), and especially the price of food (bar, restaurant); it should be noticed, however, that the customers are rather high demanding for the particular subcriteria, fact that indicates that the company should make extended efforts in order to increase the satisfaction level.
- The provided comforts (cabins, common use areas), and the quality of food; customers do not consider the particular satisfaction dimensions important, but improvement margins are quite large.
- The frequency of the routes, especially during the peak periods, and the average service time in the ships and the agencies as well; since the customers are not very demanding with respect to the particular subcriteria, the improvement efforts are expected to have an immediate return.

8.2.3 Customer segmentation analysis

In order to identify customers' clusters with distinctive preferences and expectations in relation to the total clientele, the presented analysis is based on variables that can segregate the total clientele, and may refer either to customer's personal characteristics (age, marital status, etc.) or to details of his/her trip (ship, route, etc.).

According to Tables 8.5 and 8.6, the comparative analysis of the customer clusters does not indicate any significant differentiation compared to the results of the analysis of the total clientele presented in the previous section. Nevertheless, the following points raise:

- Young and old customers seem less demanding and more satisfied from the criteria of service, additional service, and comfort-service quality.
- The married customers give higher importance to the comfort-service quality criterion. Note that they are quite satisfied in this particular criterion.
- Medium frequency customers consider of particular importance the criteria of service, additional service, and comfort-service quality.

In general, the total clientele may be divided in two main clusters: married customers with children, 26-50 years old, that do not use often the company's ships and customers of higher or lower age that use to travel with the company's ships.

Regarding the price criterion, which presents a worryingly low satisfaction level, the first customers cluster considers particularly important the prices of vehicle and food, while the second cluster considers the ticket price as the most important subcriterion. This conclusion is very important for the improvement efforts and the determination of the pricing policy of the company.

Table 8.5 Average satisfaction indices per customer segment (%)

Segment		Overall	Credibility	Prices	Service	Additional service	Comfort-Service quality
Age	-25	79.7	93.7	26.5	71.2	65.3	64.9
	26-35	71.9	94.1	19.8	57.8	43.1	32.9
	36-50	78.7	94.4	21.4	61.3	45.9	63.2
	50-	83.0	94.2	21.6	67.3	67.6	76.1
Marital status	Single	77.3	94.6	23.4	61.9	44.6	57.2
	Married	72.3	91.3	13.4	44.5	47.6	78.2
	Married with children	81.5	94.4	21.8	65.4	64.4	65.9
Travel frequency	Low	79.7	95.0	22.8	62.4	57.7	59.2
	Medium	77.2	89.0	18.3	75.5	68.6	73.5
	High	78.6	98.3	23.6	58.8	46.4	55.1

Table 8.6 Criteria weights per customer segment

Segment		Credibility	Prices	Service	Additional service	Comfort-Service quality
Age	-25	55.3	8.7	14.0	11.0	11.0
	26-35	59.8	9.0	9.2	9.3	12.6
	36-50	62.4	8.6	9.6	9.4	10.1
	50-	54.1	8.4	10.1	10.8	16.5
Marital status	Single	61.9	9.0	10.4	9.1	9.6
	Married	51.1	10.6	9.0	9.3	20.0
	Married with children	60.8	8.5	10.1	10.2	10.5
Travel frequency	Low	63.2	8.6	9.7	9.1	9.3
	Medium	40.9	9.3	20.0	13.1	16.7
	High	64.1	8.6	9.1	8.9	9.3

Finally, it should be mentioned that additional analyses with respect to the route, the ship, and the class that the passengers travel at, do not differentiate the basic conclusions of the previous cluster analysis, and do not suggest any other segregation of the clientele (Grigoroudis et al., 1999b).

In general, it seems that the lack of competition and the credibility criterion are responsible for the satisfactory global performance of the company. However, the company should engage itself in the aforementioned particular improvement efforts in order to face the oncoming strong competition.

8.3 Analyzing Satisfaction for a Publishing Company

8.3.1 Introduction

Scientific research in the sector of press readability and specifically magazines is not particularly extensive. However, all relative research indicates that reader satisfaction is a complex, multi-variable experience, which constitutes the resultant of a rich bunch of distinguishable dimensions. Research that was held in 2001 in the USA with the support of the Newspaper Association of America and the American Society of Newspaper Editors indicated the existence of four "cornerstones" of reader satisfaction: content, brand, service excellence and constructive culture. Research in 100 USA magazines attributed a classification of 39 dimensions of reader satisfaction (Calder et al., 2003).

The presented application focuses on planning a reader-oriented strategy for a publishing company using the MUSA methodology (Alexopoulos et al., 2006). The analysis of reader satisfaction concerns RAM, the leading IT monthly magazine in Greece established in 1988. RAM extracted fast the first rank in circula-

tion, with a significant range from the second magazine onwards, among all rival publications. It has kept up this leading role in its entire "circle" as product. During the time of the survey (May 2005), RAM circulation in Greece was 45,000 copies. The importance of developing a new reader-oriented strategy is justified by the increasing intensity of RAM's main competitors. Alexopoulos et al. (2006) present analytically the market conditions as well as RAM's current strategy.

In order to access the reader satisfaction criteria set, the following sources of information were used:

- reader comments through a preliminary satisfaction survey,
- management opinions, collected and ascertained through personal interviews, and
- relevant literature (Carlson, 1985; Katcher, 1995; Calder et al., 2003; Calder and Malthouse, 2004).

The main satisfaction dimensions reflect the following:

- *Culture*: It refers to the magazine's objectivity, its publishing independence, its response to the reader's needs and expectations, the variety and range in content coverage, the effectiveness in the management of change and the degree of participation in notion cultivation.
- *Content*: It concerns the magazine's editorial content disaggregated into editorials, science and technology columns, news reports, user guides, comparative tests, market guide, IT introductory books, special supplements (IT for kids, digital photography, IT for SMEs, games and gadgets), CD-ROM content, internet content and advertising content.
- *Bonus material*: It comprises occasional presents (such as books and movies), and free software applications.
- *Manageability and aesthetics*: This criterion refers to the functionality of the magazine issue as a "package", the manageability of its structure, the aesthetics of pages layout and cover, and also the quality of printing and paper used.
- *Price*: It refers to the reader's satisfaction from issue price and subscription price.
- *Disposition and distributio*n: It concerns the extent of the distribution network (area coverage), the efficiency of this network and also the satisfaction from the subscription services.
- *Customer care*: It refers to the reader's satisfaction regarding complaint management, replacement of defective magazine issues or CD-ROM disks, and also telephone reader care/problem-solving services.

The entire customer value hierarchy counts of 7 main criteria and 32 subcriteria (for more details see Alexopoulos et al., 2006).

The questionnaire was included and distributed to readers along with RAM issue of May 2005 (a total of 45,000 questionnaires). The final sample consists of 893 readers (response rate almost 2%) and covers different customer segments according to age, sex, income, education, geographical area, etc.

8.3.2 Main Results

As shown in Table 8.7, the average overall satisfaction index is 94.5%, which is consistent with the high satisfaction indices appearing for the most of the main criteria. However, the readers of RAM magazine appear less satisfied regarding the criteria of "Price", "Bonus material", and "Customer care" (average satisfaction indices of 55%, 74%, and 77%, respectively).

The action diagram of Figure 8.9 shows that there is no significant gap between what readers want (importance) and what readers get (performance). Consequently, it appears that the criteria of "Content", "Manageability and aesthetics", and "Culture" are the relative advantages of the magazine, while the criteria of "Price", "Bonus material", and "Customer care" appear as the most significant weak points. Although readers do not consider these criteria as important (they are located in the "Status quo" quadrant), improvement efforts should be focused on these, mainly due to their relatively low demanding level.

Regarding the satisfaction subcriteria, the results of the MUSA method presented in Table 8.8 reveal the following:

- With respect to the "Content" criterion, a leverage opportunity appears for "News reports", "Consultation and user guides", and "IT introductory books".
- On the other hand, regarding the same criterion, an action opportunity arises for the improvement, firstly of the magazine's website, and secondly, for "Comparative tests", "Digital Photography" supplement, "Knowledge, science and technology columns", and "Editorials".
- Moreover, the expensive "ramkid" (IT for kids) supplement has a relatively high satisfaction index, while generally readers do not consider it important.
- Similarly, regarding the "Bonus Material" criterion, there is a leverage opportunity for "Presents", while unnecessary effort appears to be given to "Software applications".

Table 8.7 Criteria satisfaction results

Criteria	Weight (%)	Average Satisfaction Index (%)
Culture	14.7	94.2
Content	50.1	98.1
Bonus material	4.3	74.0
Manageability and aesthetics	17.1	96.9
Price	4.1	55.0
Disposition and distribution	5.0	87.9
Customer care	4.7	77.0
Overall	-	94.5

- Another interesting finding related to the "Price" criterion: the "Issue price" subcriterion has a weight of 94.6% and an average satisfaction index of 85.8%. Thus, management may consider funding a reader-oriented improvement of the magazine by increasing current issue price (€7.5), since price elasticity appears rather high.

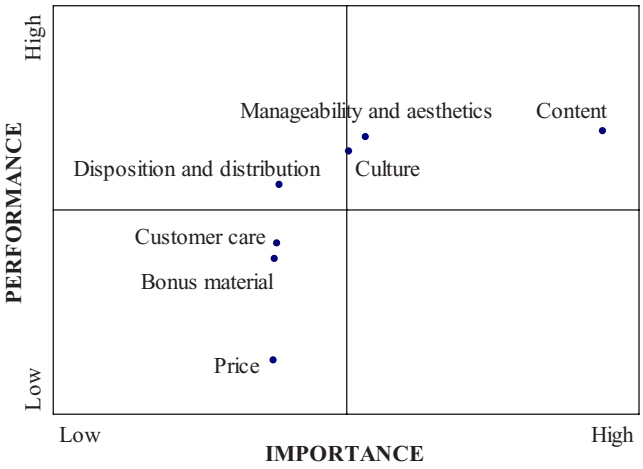

Fig. 8.9 Action diagram for main satisfaction criteria

Using the results of this study, the editor of RAM did decide to proceed to a number of changes in the magazine's editorial strategy. These changes included the following:

- Develop a separate publication issue of "ramkid" specifically focused on kids (it is located in the "Transfer recourses" quadrant, having a relatively high performance and a low importance level according to the previous results).
- Cancel the publication of "Financial RAM" supplement (according to this study, it has one of the smallest weights among the sub-criteria of "Content" and also a moderate average satisfaction index).
- Use the resources savings based on the aforementioned changes to reinforce "Consultation and user guides" and "IT introductory books" supplements (the study indicates them as a leverage opportunity).

As emphasized by Alexopoulos et al. (2006), these changes were very successful in terms of circulation and revenues during a time period of decline for other Greek IT magazines (circulation was boosted nearly 20%, while advertising profits were also significantly increased).

Table 8.8 Criteria satisfaction analysis

Criteria	Subcriteria	Weight (%)	Average Satisfaction Index (%)
Culture	Credibility, objectivity and publishing independence	5.0	85.0
	Response to reader's needs and expectations	20.2	95.3
	Variety, range and completeness in content coverage	6.2	88.6
	Suppleness, change management	64.2	99.8
	Cultivation of participation notion	4.4	67.8
Content	Editorials	5.1	85.4
	Knowledge, science and technology columns	5.8	90.7
	News reports	25.6	97.0
	Consultation and user guides	10.9	92.3
	Comparative tests	6.3	88.9
	Market guide	4.3	74.5
	Ramkid (IT for kids supplement)	4.5	80.3
	Financial RAM (IT for SME supplement)	4.5	70.6
	bit (games and gadgets supplement)	4.6	74.9
	ΨΦ (digital photography supplement)	5.9	86.7
	IT introductory books	9.7	91.1
	CD-ROM content	4.3	74.0
	www.in.gr/RAM	4.1	66.6
	Advertising content	4.4	66.5
Bonus material	Presents	91.0	95.0
	Software applications	9.0	83.7
Manageability and aesthetics	Functionality of the issue package	8.0	92.3
	Manageability of magazine structure (contents-entities)	81.9	99.0
	Content Pages/cover aesthetics	5.3	91.4
	Paper and printing quality	4.8	92.7
Price	Issue price	94.6	85.8
	Subscription price	5.4	58.5
Disposition and distribution	Extend of distribution network (area coverage)	80.0	98.9
	Efficiency of distribution network	12.8	94.2
	Subscription services	7.2	85.8
Customer care	Complaint management-Replacement of defective issues or CD-ROM disks	50.3	93.5
	Telephone reader care-Problem solving	49.7	95.7

8.3.3 Developing New Publishing Strategies

The new reader-oriented strategies presented in this section are based on a segmentation satisfaction analysis applied on different customer groups in order to identify distinguished preferences and expectations.

According to the demographics of the sample, the group of students is rather small in the total population of RAM readers (approximately 18%). This group gives completely different importance to the satisfaction criteria (main criteria and subcriteria) compared to the total sample of readers (see Tables 8.9 and 8.10). Thus, a single strategy that would be able to sufficiently cover both customer groups does not exist.

Table 8.9 Criteria weights and average satisfaction indices (for students)

Criteria	Weight (%)	Average Satisfaction Index (%)
Culture	5.3	85.5
Content	52.3	98.7
Bonus material	4.3	74.5
Manageability and aesthetics	14.3	97.6
Price	4.1	47.7
Disposition and distribution	14.3	96.3
Customer care	5.4	80.8

Table 8.10 Comparison of "Content" subcriteria weights (students vs. all readers)

Criteria	Weight (all readers) (%)	Weight (students only) (%)
Editorials	5.1	41.4
Knowledge and science columns	5.8	4.8
News reports	25.6	4.6
Consultation and user guides	10.9	5.2
Comparative tests	6.3	5.2
Market guide	4.3	4.2
Ramkid (IT for kids)	4.5	4.2
Financial RAM (IT for SME)	4.5	4.3
bit (games and gadgets)	4.6	4.4
ΨΦ (digital photography)	5.9	4.6
IT introductory books	9.7	4.4
CD-ROM content	4.3	4.2
www.in.gr/RAM	4.1	4.1
Advertising content	4.4	4.4

Therefore, a separate edition of an IT magazine focused on students (e.g. "RAM for students") seems like an opportunity for the editor. Students reflect, as leverage opportunity of RAM, the criterion "Content" and would like "RAM for students" to have the lowest possible price, well looked-after "Editorials", "Consultation and user guides", and "Comparative tests". In order to apply this particular strategy, resources could be transferred from actions involved in "Knowledge, science and technology columns", "News reports", "bit", "Digital Photography", and "IT introductory books".

Another important customer segment that seems to have a distinguished preference system refers to women. The participation of this group in the total population of RAM readers is also small (approximately 11%). Tables 8.11 and 8.12 show the estimated weights and average satisfaction indices for women, as well as the comparison of subcriteria weights with the total sample of readers, regarding the magazine's content. These results suggest that "women" is a segment with characteristics that divert significantly from the rest of the population.

Table 8.11 Criteria weights and average satisfaction indices (for women)

Criteria	Weight (%)	Average Satisfaction Index (%)
Culture	50.7	98.5
Content	17.0	95.6
Bonus material	4.2	76.4
Manageability and aesthetics	14.3	96.6
Price	4.2	57.2
Disposition and distribution	4.8	88.3
Customer care	4.8	79.3

Based on the aforementioned findings, a separate edition of an IT magazine focused on women appears as an important market need. Women reflect, as leverage opportunity of RAM, firstly the criterion "Culture" and then the criteria "Content" and "Manageability and aesthetics". Moreover, price elasticity is relatively high for this customer group. According to their preferences, the subcriteria "Editorials", "News reports", "CD-ROM applications", "IT introductory books", and "Consultation and user guides" appear as leverage opportunities of "Content". To effectively financing this separate edition, resources may be transferred from "Knowledge, science and technology columns", "Comparative tests" and "Digital Photography".

Table 8.12 Comparison of "Content" subcriteria weights (women vs. all readers)

Criteria	Weight (all readers) (%)	Weight (women only) (%)
Editorials	5.1	23.0
Knowledge and science columns	5.8	5.1
News reports	25.6	9.6
Consultation and user guides	10.9	7.1
Comparative tests	6.3	5.1
Market guide	4.3	4.7
Ramkid (IT for kids)	4.5	4.7
Financial RAM (IT for SME)	4.5	5.1
bit (games and gadgets)	4.6	4.7
ΨΦ (digital photography)	5.9	4.7
IT introductory books	9.7	7.8
CD-ROM content	4.3	9.6
www.in.gr/RAM	4.1	4.4
Advertising content	4.4	4.4

8.4 Longitudinal Customer Satisfaction Analysis

8.4.1 Introduction

Internet access services are a rapidly growing business sector worldwide, taking advantage of the major technological progress. In most of the cases, this sudden increase has caused a strong price and product competition (Chiou, 2004). This competition is leading some Internet Service Providers (ISPs) to provide free Internet access to attract customers, adopting, at the same time, a "mass customization" strategy, individualizing Internet access services.

Regarding subscription businesses such as ISPs, cable TV operators, and telecommunications network operators, holding onto valuable customers and attracting new ones is a never-ending challenge (Kon et al., 2007). Unlike other cases related with technological products (e.g. personal computers) where consumers face a rather simple purchase decision problem (i.e. buy or not buy), customer behavior in the aforementioned sectors is quite different. For example, ISP customers usually sign a contract and, during this period, if the provided service is not satisfactory, they can discontinue the subscription and switch to competitor providers. This switching behavior is rather complex, and for this reason, conflicting theoretical approaches, addressing it, may be found in the literature (Cai et al., 1998; Madden et al., 1999; Ross, 2002; Kon et al., 2007).

The main aim of the application presented in this section is to discuss a framework for analyzing changes of customer preferences. It should be noted that the

principal objective is not to perform long-range comparisons, which will give the ability to evaluate particular customer preferences trends, but rather to analyze short-term changes, given the unstable conditions of the ISP market. Thus, the presented results focus mainly on demonstrating how several tools, like perceptual maps, may be used in order to analyze changes of customer preferences. For the purposes of the presented study, two independent customer satisfaction surveys have been conducted in different time periods on behalf of one of the major ISP in Greece. However, the presented framework may be adopted by the other business organizations operating in similar market conditions (e.g. by subscription business sectors as mentioned before). The analyses are based on non-parametric statistical techniques, as well as on the MUSA method (Grigoroudis et al., 2007b).

8.4.2 Research Background

Internet usage in Greece has been significantly expanded during the last years, although there is a large lag compared to other European countries (ICAP, 2005). The percentage of Internet usage has been doubled between 2001 and 2004 (from 10% in 2001 to almost 20% in 2004). The limited adoption of information technology may justify the previous findings, since only 25% of the population uses a personal computer, while almost 70% uses mobile telephony. Besides, ISPs in Greece are currently paying significant efforts in order to increase broadband Internet usage, although the cost of these services is still relatively high. Apart from limitations by the available technological infrastructure and the government initiatives and incentives to businesses, the behavior of users is one of the most important drivers for this relatively low level of Internet usage. Therefore, it is important to perform an in-depth analysis of current customer preferences and to examine the factors that influence customer loyalty intensions, so that struggling companies might design more effective customer retention strategies (Xanthidis and Nicholas, 2004).

The Greek ISP sector is highly competitive due to the limitations of the market size, as already noted, and the large number of companies offering Internet services. Most of these companies also offer additional telephony services (PSTN: Public Switched Telephone Network, mobile telephony), as well as advanced technology and informatics applications (web hosting, frame relay, VPN: Virtual Private Network, etc.). For these reasons, the ISP market is heavily affected by the market conditions of other related sectors (e.g. telecommunications), as shown by recent mergers and acquisitions (ICAP, 2005). Furthermore, it should be emphasized that market conditions change rapidly due to major technological progress (e.g. ADSL: Asymmetric Digital Subscriber Line broadband Internet access).

However, despite these unstable conditions in the Greek ISP sector, the market size has increased significantly during the last years. The number of Internet subscribers in Greece has increased more than ten times in the last 7 years (from 61,000 subscribers in 1998 to 790,000 in 2004). These findings show an average

annual market increase rate of almost 60%. The total value of the ISP market is estimated to be more than 300 million Euros during 2004 (ICAP, 2005).

The structure of the ISP sector in Greece is more complicated, since it includes a large number of non-profit organizations offering Internet services to users (individuals or companies) under special conditions (e.g. scientific or commercial chambers). Also, a national network of research and technology offers free of charge Internet access to more than 85 universities and research institutions in Greece. This particular number of Internet users (professors, researchers, students) is not included in the real size of the market, although it counted more than 300,000 users in 2004.

The ISP sector is also characterized by a highly concentration: the three larger companies have more than 65% of the market, while more than 30 other companies have market shares varying between 0.2% and 1.2%. Furthermore, it should be noted that the market is dominated by the public ISP/PSTN carrier (with market share more than 40%), which creates strong "monopolistic" conditions since the other ISPs should use this public network in order to provide Internet connection to their customers (Xanthidis and Nicholas, 2004).

Conclusively, the aforementioned findings show that the ISP sector is characterized by a highly competitive market of rather limited size, consisting of a large number of operating companies. Competition is focused on price, as well as on product, through "mass customization" strategies, individualizing services and approaching every customer in an individual way.

8.4.3 Customer Survey

The determination of e-service quality measures is a major problem in customer behavior literature, since traditional approaches, like Servqual (Parasuraman et al., 1985; 1988) do not fit well in the case of online services. These traditional approaches are based on interactive processes between customers and service providers through either face to face meeting or traditional communication media (e.g. telephone, fax, etc.). Recently, new approaches, like Esqual (Parasuraman et al., 2005), have been proposed in order to overcome these difficulties. Cai and Jun (2003) present an extensive review and an excellent discussion about customer perceptions and service quality dimensions for the online service environment.

The assessment of the satisfaction criteria used in this survey is mainly based on previous research efforts (Wetzel, 2001; Kyriazopoulos et al., 2006), as well as on an interactive communication process with the managers of the organization. Internet service quality dimensions that are able to affect switching behavior and customer loyalty have also been considered (Kon et al., 2007).

This customer value hierarchy is shown in Figure 8.10, and consists of the following main satisfaction dimensions (Grigoroudis et al., 2007b):

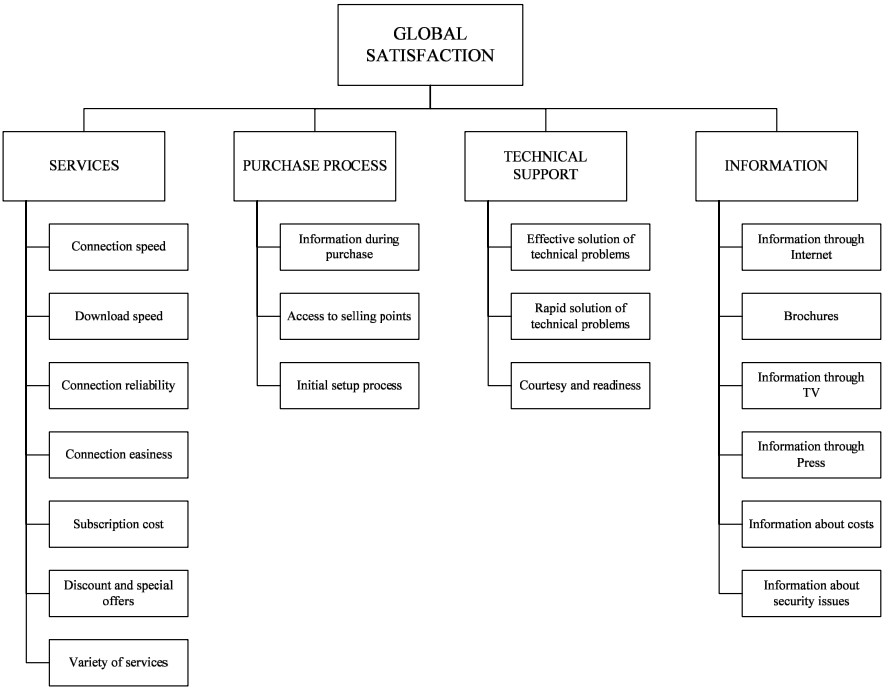

Fig. 8.10 Satisfaction criteria hierarchy

- *Services*: Main technical service characteristics (connection speed, download speed, connection reliability, etc.), cost-related characteristics (subscription cost, discount, special offers), as well as variety of provided services.
- *Purchase process*: Characteristics of the purchase process, like access to selling points, information during purchase, initial setup process, etc.
- *Technical support*: Provided support and solution to technical problems (quickness, effectiveness), as well as employee behavior (courtesy, readiness, etc.).
- *Information*: Main characteristics of the information offered to customers about cost, security, etc., through Internet, brochures, TV, and press.

For the purposes of the analysis, two separate surveys have been conducted on behalf of one of the major ISP in Greece, during summer 2004 and spring 2005. The final sample consists of more than 1,400 questionnaires; 682 subscribers participated in the 2004 survey, while 721 subscribers participated in the 2005 survey.

All necessary information has been collected through personal interviews with the customers, applying a random sampling process. Moreover, an anonymous questionnaire has been used in both of these surveys, having the same structure, in order to collect comparable input data.

The most important descriptive statistical results that seem unvarying during this period and may formulate a customer profile are:

- Despite the fact that a single subscription may be used by several family members, customers are mainly highly educated (45% have a University degree) and males (almost 65% of the sample).
- The most preferred places of Internet connection are home and work. Moreover, more than 60% of the customers prefer to use their Internet subscription in order to find business information and communicate (e.g. email, chat).

Additional analyses have also revealed important changes of customer profile, which are mainly caused by recent technological changes in the Greek ISP market. As a consequence, average customer age and Internet usage have increased. Furthermore, although the percentage of dialup customers is still high (more than 40% during 2005), ADSL subscribers have increased by 240% (from 5% to 17% during the last year). Generally, the 2005 results show that customers increasingly prefer higher connection speed. Additional results and discussion are given by Grigoroudis et al. (2007b) and Kyriazopoulos et al. (2006).

8.4.4 Statistical Analysis

The main objective of the presented statistical analysis is to test changes on customer judgments, rather than to evaluate an overall (or partial) satisfaction level. It should be emphasized that performed analysis should respect the qualitative type of the collected information (i.e. ordinal data).

Overall customer judgments for both years are given in Figure 8.11, where it is shown that almost 80% are "very satisfied" or "satisfied". Furthermore, as shown in Table 8.13, customers appear rather satisfied by the main characteristics of the service offered. However, although the percentage of "very dissatisfied" and "dissatisfied" customers is low, the number of subscribers having a neutral or a high satisfaction level varies among these main criteria.

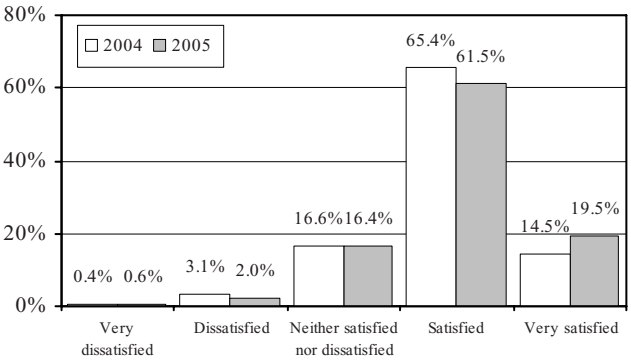

Fig. 8.11 Global satisfaction frequencies

Table 8.13 Main criteria satisfaction frequencies (%)

Year	Satisfaction levels	Services	Purchase process	Technical Support	Information
2004	Very satisfied	8.7	14.4	11.1	4.8
	Satisfied	56.0	56.7	44.4	42.4
	Neither satisfied nor dissatisfied	29.9	26.4	39.7	43.3
	Dissatisfied	4.8	2.1	3.1	7.9
	Very dissatisfied	0.6	0.4	1.6	1.6
2005	Very satisfied	13.2	12.9	11.7	4.2
	Satisfied	55.9	51.1	44.8	40.3
	Neither satisfied nor dissatisfied	26.7	31.7	36.5	44.2
	Dissatisfied	3.8	3.5	6.3	10.3
	Very dissatisfied	0.4	0.7	0.7	1.0

Additional results concerning subcriteria satisfaction may also help to justify previous findings. In particular, customer judgment frequencies for the detailed service dimensions (see satisfaction criteria hierarchy in Figure 8.10) show that 55-75% of the customers are “very satisfied” or “satisfied” regarding almost the whole set of satisfaction subcriteria. Exceptions to this finding may be summarized in the following:

- Customers appear less satisfied regarding the cost-related dimensions. For example, 23% of the customers are “very dissatisfied” or “dissatisfied” and 37% of the customers are “very satisfied” or “satisfied” by the subscription cost in the 2004 survey (18% and 42% respectively for the 2005 survey). Also, while the number of dissatisfied customers concerning the discount criterion appears to have decreased (17% and 15% in the 2004 and 2005 surveys, respectively), the number of satisfied customers regarding this particular subcriterion has also been decreased (46% and 44% in the 2004 and 2005 surveys, respectively).
- Customers appear rather dissatisfied by the technical support of the provider. 11-13% of the customers are “very dissatisfied” or “dissatisfied” by the effective and rapid solution of technical problems during both years. Moreover, while the number of satisfied customers regarding solution effectiveness has decreased (from 51% in 2004 to 49% in 2005), the number of satisfied customers by the speed of technical response has increased (from 46% in 2004 to 47% in 2005).
- The information-related subcriteria appear to have the highest level of dissatisfaction compared to all other satisfaction dimensions. 15-25% of the customers are “very dissatisfied” or “dissatisfied” by the provided information (through Internet, TV, press, brochures, etc.) in both years, while the percentage of satisfied customers varies between 34% and 50%.

Although satisfaction frequencies do not appear very different between these years, there are some notable variations, which, however, are not able to reveal a

potential trend. Moreover, these variations are not able to indicate a real change on customer satisfaction regarding each particular service characteristic, because mainly of the ordinal nature of data. Moreover, it is not easy to decide which amount of difference indicates a significant change of customer preferences.

For these reasons, non-parametric statistical analysis has been also used in order to examine potential changes on customer judgments. Particularly, the Kolmogorov-Smirnov test for 2 independent samples has been applied on distribution functions of customer satisfaction judgments (global, criteria, subcriteria). The two-sample Kolmogorov-Smirnov test is used to test whether 2 independent samples of an ordinal variable come from the same sample, or can be considered to be significantly different.

The results of the Kolmogorov-Smirnov test are presented in Tables 8.14 and 8.15, and are focused on the following:

- The overall customer satisfaction and the satisfaction concerning the main criteria of services, technical support and information have not changed during these years. However, there is a difference for satisfaction judgments concerning purchase process (assuming a 10% significance level).
- Almost all of the subcriteria satisfaction frequencies do not appear different in the 2004 and 2005 surveys. Nevertheless, customer satisfaction concerning connection speed and information during process (in a 5% significance level) and download speed, connection reliability, initial setup process, and information about security issues (in a 10% significance level) seems to have changed during last year.

Table 8.14 Kolmogorov-Smirnov test (main criteria)

Criteria	Most extreme differences			K-S z value	Asymp. Sig. (2-tailed)
	Absolute	Positive	Negative		
Services	0.046	0.000	−0.046	0.849	0.466
Purchase process	0.071	0.071	0.000	1.319	0.062
Technical support	0.023	0.023	−0.009	0.435	0.992
Information	0.027	0.027	−0.006	0.502	0.962
Global	0.050	0.001	−0.050	0.934	0.347

The Kolmogorov-Smirnov test may also reveal the direction of potential changes, examining if the most extreme differences are positive or negative. However, it should be noted that this test is a univariate analysis that does not take into account that customer judgments formulate multivariate distribution functions. Furthermore, the problem of ties is very important in this type of analysis, given the 5-level ordinal scale used in the survey. Finally, alternative non-parametric statistical tests concerning hypothesis on cumulative distribution functions of customer judgments may also be used (like Mann-Whitney U test, Wald-Wolfowitz runs, etc.).

Table 8.15 Kolmogorov-Smirnov test (subcriteria)

Criteria	Subcriteria	Most extreme differences			K-S z value	Asymp. Sig. (2-tailed)
		Absolute	Positive	Negative		
Services	Connection speed	0.074	0.000	−0.074	1.389	0.042
	Download speed	0.071	0.000	−0.071	1.323	0.060
	Connection reliability	0.066	0.005	−0.066	1.236	0.094
	Connection easiness	0.051	0.000	−0.051	0.960	0.315
	Subscription cost	0.056	0.000	−0.056	1.048	0.222
	Discount and special offers	0.036	0.017	−0.036	0.671	0.760
	Variety of services	0.048	0.000	−0.048	0.894	0.401
Purchase process	Information during purchase	0.093	0.093	0.000	1.741	0.005
	Access to selling points	0.026	0.026	−0.026	0.494	0.968
	Initial setup process	0.071	0.071	0.000	1.326	0.059
Tech. support	Effective solution of technical problems	0.023	0.020	−0.023	0.424	0.994
	Rapid solution of technical problems	0.036	0.009	−0.036	0.665	0.769
	Courtesy and readiness	0.054	0.054	−0.023	1.013	0.256
Info	Information through Internet	0.056	0.056	−0.021	1.038	0.232
	Brochures	0.033	0.013	−0.033	0.625	0.829
	Information through TV	0.046	0.000	−0.046	0.867	0.440
	Information through Press	0.052	0.000	−0.052	0.969	0.305
	Information about costs	0.064	0.064	0.000	1.188	0.119
	Information about security issues	0.072	0.072	0.000	1.341	0.055

8.4.5 Satisfaction Analysis

The non-parametric statistical analysis shows if there are changes in customer judgments between the 2004 and 2005 surveys. However, the main question in this case remains: Do these changes lead to modification of customer preferences?

The satisfaction analysis presented in this section is based on the results provided by the MUSA method. Table 8.16 displays the most important results for overall and criteria customer satisfaction analysis, which may be summarized as follows:

- "Services" and "Information" are the criteria with the highest weights in both surveys, while customers do not seem to give importance to "Purchase process" and "Technical support".

- "Purchase process" is also the criterion with the highest average satisfaction index, while customers are more dissatisfied from "Information" in both years.
- The average global satisfaction index is not relatively high, which indicates significant improvement margins for the business organization. The same situation appears for particular satisfaction criteria, as well.
- Generally, it seems that there are no changes in customer preferences. This may be justified by applying a Chi-square test for homogeneity in these results (separately for satisfaction criteria weights and average satisfaction indices).

Table 8.16 Criteria weights and average satisfaction indices

Criteria	Weights (%)		Average satisfaction indices (%)	
	2004	2005	2004	2005
Services	36.0	38.0	71.7	74.7
Purchase process	20.0	18.0	82.3	78.5
Technical support	16.0	16.0	71.3	71.6
Information	28.0	29.0	63.4	64.1
Overall satisfaction	-	-	76.3	77.6

The detailed results for the whole set of satisfaction subcriteria are given in Table 8.17 and they show that customer preferences have been affected by the introduction of new services and the improvements on the technological aspects of service quality. A small increase of customer satisfaction may be noticed regarding the subcriteria of "Services", while the importance of these subcriteria appears unvarying. This may be justified by considering a potential increase of customer expectations, although the performance of these characteristics has been improved (e.g. connection speed and reliability, download speed, etc.). On the other hand, the weights of "Information during purchase" and "Initial setup process" have been increased, while customers appear less satisfied in these particular characteristics. The development of new products and the acquisition of new customers may explain these observed changes of subcriteria importance. Finally, all the subcriteria of "Technical support" and "Information" dimensions appear to have an equal importance level, while customer satisfaction varies between the examined years for these specific characteristics.

Action and improvement diagrams may also be very helpful for tracking changes of customer preferences. Figures 8.12 and 8.13 present these relative diagrams for the main satisfaction criteria. The diagrams indicate that there are no significant changes for the strong and the weak points of the ISP. However, "Services" is no more a critical criterion, since it is now located in the leverage opportunity quadrant (action diagram). Although the "Services" criterion is a strong point for the organization in the 2005 survey, it is the quality characteristic with the highest improvement priority (it is close to the 1st priority quadrant in the improvement diagram), mainly because now customers appear less demanding. Moreover, it is important to emphasize that "Information" remains a critical satis-

faction dimension in both surveys, since it is located in the action opportunity quadrant (action diagram). On the other hand, as Figure 8.12 shows, the ISP seems to pay unnecessary attention to the "Purchase process" (it is located in the transfer resources quadrant in both surveys).

Table 8.17 Subcriteria weights and average satisfaction indices

Criteria	Subcriteria	Weights (%)		Average satisfaction indices (%)	
		2004	2005	2004	2005
Services	Connection speed	14.58	14.10	74.67	77.58
	Download speed	14.58	14.53	73.04	76.37
	Connection reliability	14.58	14.10	76.49	77.91
	Connection easiness	14.58	14.10	77.72	79.20
	Subscription cost	13.55	14.10	61.31	67.41
	Discount and special offers	13.54	14.10	65.00	68.37
	Variety of services	14.58	14.95	72.29	75.95
Purchase process	Information during purchase	26.13	29.71	76.40	73.70
	Access to selling points	47.74	39.98	87.74	83.75
	Initial setup process	26.13	30.31	78.31	76.33
Tech. support	Effective solution of technical problems	32.54	33.33	68.72	70.41
	Rapid solution of technical problems	33.73	33.33	68.87	69.72
	Courtesy and readiness	33.73	33.33	76.08	74.53
Info	Information through Internet	18.69	18.03	75.04	74.98
	Brochures	16.42	18.03	62.50	67.18
	Information through TV	15.50	16.48	55.87	62.87
	Information through Press	15.49	16.32	55.03	60.19
	Information about costs	17.36	15.85	64.76	59.41
	Information about security issues	16.54	15.28	64.55	58.19

A similar analysis can be also performed for the detailed satisfaction subcriteria. Figures 8.14 and 8.15 show the location of satisfaction subcriteria in action and improvement diagrams in 2004 and 2005 surveys. The most important findings for the ISP may be focused on the following:

- "Access to selling points" remains a strong point for the organization, revealing a good performance regarding the network of retail stores. Furthermore, new strong points of the ISP appear in the 2005 survey, concerning mainly the technological dimensions of the provided services (connection speed, reliability, and easiness, download speed, initial setup process, and variety of services). These satisfaction subcriteria may be used as a competitive advantage by the company.

- The technical support seems improved in the 2005 survey, since "Rapid solution of technical problems" is no more a critical satisfaction dimension, although it is still one of the first improvement priorities (due to significant improvement margins). However, cost-related subcriteria (subscription cost, discount and special offers) appear now in the action opportunity quadrant. These results may indicate a shift from quality to price competition in the ISP market.

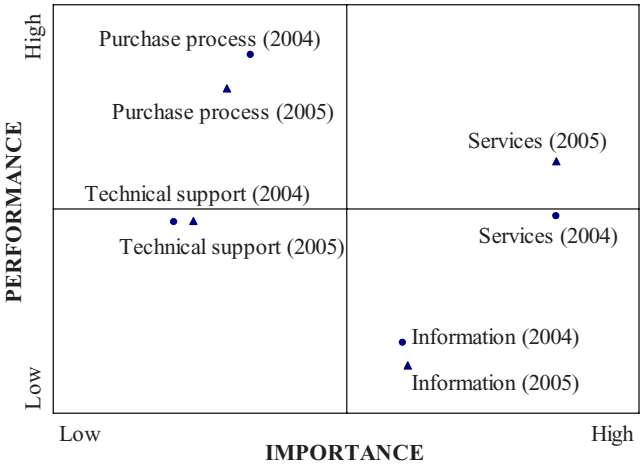

Fig. 8.12 Action diagram (2004-2005)

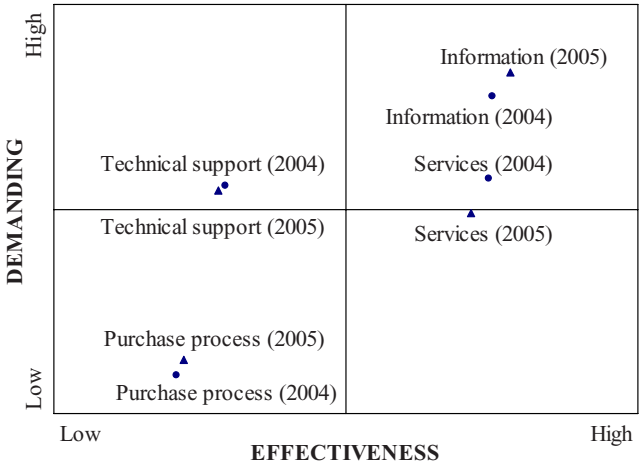

Fig. 8.13 Improvement diagram (2004-2005)

- Particular information-related subcriteria (information during process or though Internet) are still located in the transfer resources quadrant. This means that the ISP continues to pay unnecessary attention to these attributes, although company's resources may be used to improve the critical satisfaction criteria.
- Figure 8.15 reveals also some new critical improvement priorities: "Connection easiness", "Subscription cost", "Effective solution of technical problems", and "Brochures". Customers appear less demanding in these particular satisfaction dimensions, and thus potential improvement efforts may have greater effectiveness.

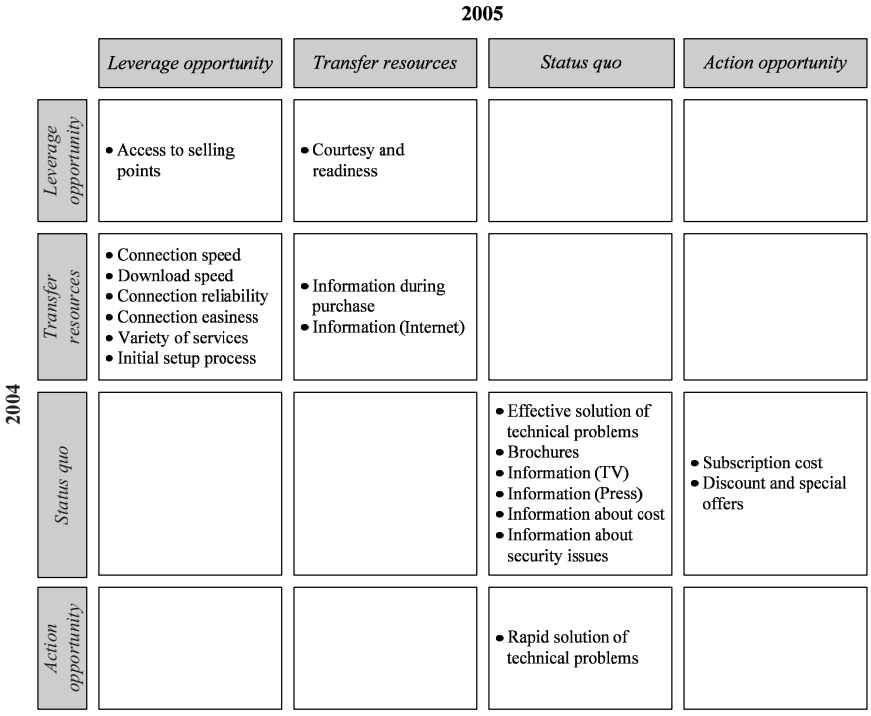

Fig. 8.14 Changes on action diagram (subcriteria)

8.4.6 Concluding Remarks

The analytical results and findings of the presented study confirm the importance of measuring service quality and analyzing customer satisfaction perceptions, and suggest for the ISPs the following:

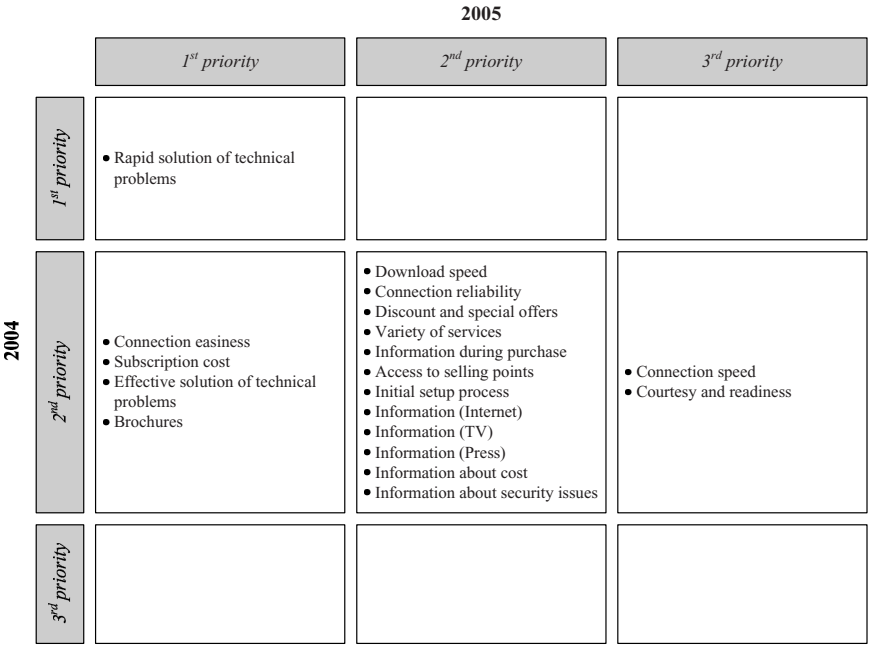

Fig. 8.15 Changes on improvement diagram (subcriteria)

- The performance of ISPs in specific service quality characteristics should be always analyzed by considering also the importance that customers give to these service dimensions. Based on the results of the action diagram (Figure 8.12), a significant gap appears concerning the quality perceived and the quality received (i.e. what customers want and what customers get). Particularly, ISPs should pay much more attention on the information given to customers, instead of using company resources to increase the performance of their purchase process.
- The improvement actions of ISPs for particular service quality characteristics may be based on customer dissatisfaction, but they should take into account the customer demanding level, as well. For example, Figure 8.13 shows that customers appear less demanding on the "Purchase process" compared to the "Technical support" dimension. Thus, although customer satisfaction level is similar to these quality characteristics, ISPs should give priority to the improvement of their purchase process.
- Analyzing changes of customer preferences may show how the strong and weak points of ISPs change over time. For example, as shown in Table 8.14, the importance of quality characteristics related to the technical aspects of provided services (e.g. speed, reliability, and setup process) have been increased, although customer satisfaction has not changed for these subcriteria. Thus,

without changing the performance of an ISP, particular quality characteristics may become competitive advantages (or weak points).

- The relatively low satisfaction level of particular information-related characteristics (information through TV, press, etc.) is an important finding for ISPs. This result may be justified by other studies proposing that information through media plays an important role on customer loyalty and new Internet technologies adoption (Choudrie and Dwivedi, 2006a; 2006b; Kon et al., 2007).
- Customers of Internet services appear to give lower importance to the personal transactions characteristics (e.g. solution of technical problems, courtesy and readiness of personnel), but higher importance to cost-related satisfaction criteria. This is an importance change for the ISP sector that should be further justified and analyzed in future research studies.

Although the presented study concerns the Greek ISP sector, the applied methodological framework may be useful for other business organizations offering e-services or having a subscription type of transactions. Thereby, in order to analyze potential detailed changes of customer perceptions, this study proposes the use of specialized quantitative techniques like multicriteria analysis and non-parametric statistics. Particularly, the additional available results provided by the MUSA method (i.e. action and improvement diagrams) may give managers a clearer view of customer perceptions.

8.5 Satisfaction Benchmarking and Segmentation Analysis

8.5.1 Research Background

The main aim of this application is to present a pilot customer satisfaction survey in the Cypriot private banking sector (Grigoroudis et al., 2002). The satisfaction survey has been conducted in several customer segments and in different branches of the banking organization as well. This approach gives the ability to perform customer segmentation and benchmarking analysis through the assessment of the critical satisfaction dimensions and the determination of customer groups with distinctive preferences and expectations.

It should be noted that the Cyprus domestic banking system can be divided into two groups of credit institutions (commercial banks and specialized credit institutions), while the Central Bank of Cyprus is the competent authority for monetary policy and for the regulation and supervision of banking. Banking in Cyprus has grown almost entirely through private initiatives and, with the exception of a few specialized credit institutions, it continues to be private. More specifically, private banks account for the 96% of banking assets, while only the remaining 4% belongs to government-controlled institutions.

During the last years, banks in Cyprus have been increasingly expanding and diversifying beyond the boundaries of traditional banking. Most of the banks have

set up subsidiaries through which they provide a wide range of specialized financial services encompassing underwriting of equities and bonds, brokerage and trading of securities, investment advisory services, portfolio and asset management, venture-capital financing and leasing, etc. These facts verify the highly competitive conditions of the market environment and the need for measuring service quality.

8.5.2 Satisfaction Criteria and Survey Conduct

Based on previous applications of the MUSA method in the banking sector (Grigoroudis et al., 1999a; Mihelis et al., 2001), the set of satisfaction criteria used in the survey consists of:

- *Personnel of the bank*: This criterion includes all the characteristics concerning personnel (skills and knowledge, responsiveness, communication and collaboration with customers, friendliness, etc.).
- *Products*: This criterion refers mainly to the offered products and service (variety, refund, cost, special services, etc.).
- *Image of the bank*: Credibility of the bank (name, reputation), technological excellence, as well as ability to satisfy future customers' needs are included in this criterion.
- *Service*: This criterion refers to the service offered to the customers; it includes the appearance of the stores, the waiting time (queue, telephone, etc.), the complexity of service processes and the information provided (informing customers in an understandable way, explaining the service and other relevant factors, informing for new products, etc.).
- *Access*: Network expansion of the bank, branches location, as well as observed troubles in the service system (strikes, damaged ATMs, etc.) are included in this criterion.

The presented customer satisfaction survey took place in two different branches of a private Bank in Cyprus in the city-area of Nicosia. The survey was conducted during March 2000 and a stratified sampling procedure according to customer types (business/individual) was selected. Data collection was completed in-store using a simple anonymous questionnaire and it was based on a poll-driven process in order to minimize overestimation bias. Final input data consist of 200 questionnaires: 100 from branch A and 100 from branch B. Moreover, 170 individual and 30 business customers have participated in the survey.

8.5.3 Customer Profile

Descriptive statistics analysis is used in order to validate sampling results, as well to formulate a general customer profile for both banking branches (see Grigoroudis et al., 2002 for a detailed presentation).

Customers seem to use all banking products and services almost at the same extent, although savings accounts and credit cards consist more than 60% of the total banking activities. Figure 8.16 shows also that the usage of special services (leasing, factoring, investments, bank assurance, mutual funds, etc.) is quite satisfactory, representing the 18% of banking activities in both branches.

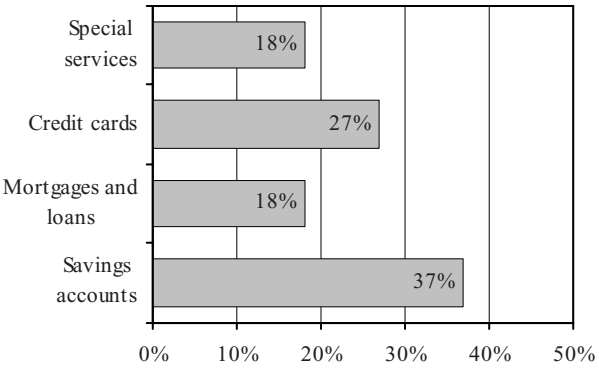

Fig. 8.16 Customer transactions

Comparison of the clientele in the two banking branches reveals that customers prefer branch A, when interested for special banking products and services (Figure 8.17). This fact is very important for customer profiling, given that the size of clientele in branch A is quite larger than in branch B, and that branch A is located in the central area of the city of Nicosia.

Table 8.18 presents the descriptive statistics results concerning global and partial customer satisfaction in both banking branches. It should be noted that the criteria do not use a uniform satisfaction scaling, in order to face the "positive shift" problem appearing in the distribution of customers' answers (Hill, 1996). The detailed results of Table 8.18 indicate the following:

- Generally, customers seem to be quite satisfied with the provided products and services in both banking branches, although potential improvement margins appear in several satisfaction dimensions.
- Customers of branch A seem less satisfied than those of branch B globally and in almost every criterion. The largest differences concern the criteria of personnel, image and access.

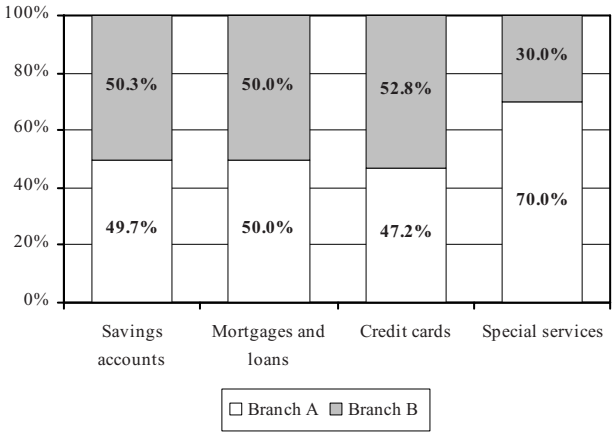

Fig. 8.17 Percentage of customer transactions per branch

Table 8.18 Overall and partial customer satisfaction per branch (% frequencies)

Criteria	Branch A			Branch B		
	Moderately Satisfied	Satisfied	Very Satisfied	Moderately Satisfied	Satisfied	Very Satisfied
Personnel	3	67	30	2	53	45
Products	7	68	25	3	68	29
Image	4	50	46	4	42	54
Service	6	63	31	5	64	31
Access	7	42	51	3	31	66
Overall	5	45	50	2	33	65

8.5.4 Customer Satisfaction Analysis

The results of the MUSA method show that the customers of branch A are less satisfied compared to the clientele of branch B. The average global satisfaction indices for banking branches A and B are 80.9% and 92.5%, respectively. These results can be justified by the criteria satisfaction analysis, from where the following points raise (Table 8.19):

- Branch A has lower partial satisfaction indices compared to branch B in all satisfaction dimensions, with an exception of the criteria of "Access" and "Image".
- The most significant difference appears in the criterion of "Personnel", where the average satisfaction level is more than 20% higher in branch A. The differences concerning the other satisfaction dimensions vary from 2.5% to 5.5% ap-

proximately, and they do not show a significant variation in the performance evaluation of the banking branches.

- Given the high competitive conditions of the market, the performance of particular satisfaction dimensions is not considered relatively high. In this context, the criteria of "Products" and "Service" show a significant potential improvement margin in both branches.
- The importance of the satisfaction criteria does not vary between the banking branches. Therefore, the criterion of "Personnel" is considered as the most important satisfaction dimension, having a weight of approximately 60%.
- The "Access" criterion is also considered important by the customers of both branches (importance level of approximately 20%), while the rest of the criteria do not show a significant importance.

Table 8.19 Weights and average satisfaction indices per branch

Criteria	Branch A		Branch B	
	Weight (%)	Average Satisfaction Index (%)	Weight (%)	Average Satisfaction Index (%)
Personnel	61.6	75.2	59.3	96.2
Products	5.5	68.1	5.8	73.4
Image	7.6	82.6	5.3	80.2
Service	7.8	71.2	6.4	75.1
Access	17.5	94.5	23.2	90.5
Overall	-	80.9	-	92.5

Combining criteria weights and satisfaction indices, the action diagrams presented in Figure 8.18 can be formulated for each banking branch. The detailed results of these diagrams reveal the following:

- The "Personnel" criterion appears as a critical satisfaction dimension for branch A, requiring immediate improvement efforts: it has the lowest average satisfaction index compared to the rest of the criteria, while it is considered as the most important criterion by customers.
- The "Personnel" and the "Access" criteria seem to be the competitive advantages of branch B.
- Although the offered "Products" and "Service" are not located in the critical quadrant of the action diagrams, they can be considered as potential critical factors for both branches: customers are not sufficiently satisfied, and if customers' satisfaction behavior changes in the future and the importance level raises, these criteria will require immediate improvement efforts.

Generally, the criterion of "Personnel' seems to differentiate the performance evaluation between the two branches. Customers prefer to visit branch A more often when interested in advanced banking products and services (see Figure 8.17). In this case, therefore, high skilled personnel is required, while at the same time

customers appear rather demanding during their transactions with branch A. This justification indicates that improvement efforts should concern education and training of the personnel in branch A.

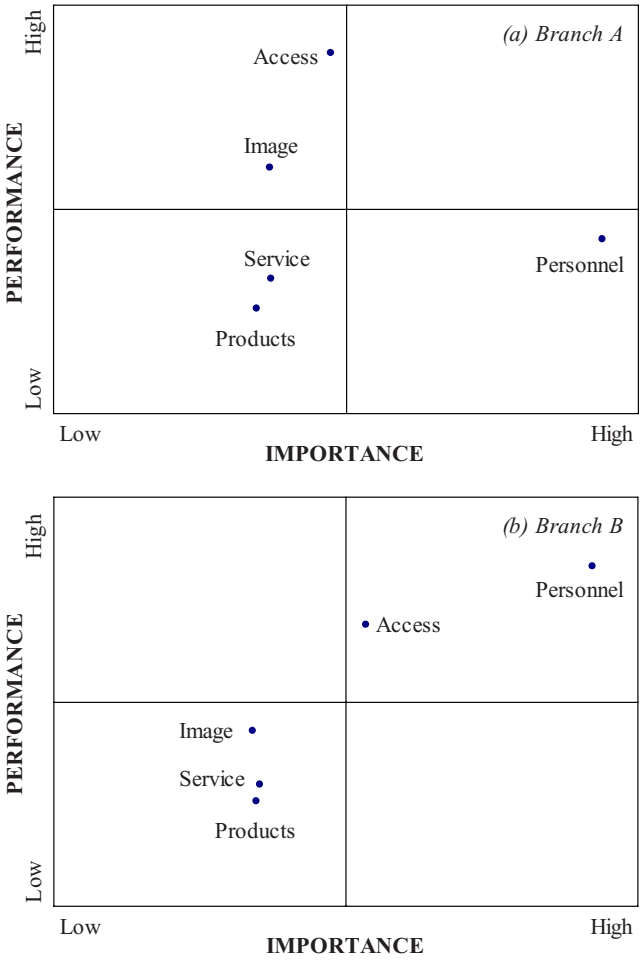

Fig. 8.18 Action diagrams per branch

Provided products and services in both branches should also be examined for improvement efforts. The main reason for the low satisfaction level is focused on the dissatisfaction of clients concerning the cost of provided banking products. All these improvement efforts should be developed taking into account the service quality offered by other banking organizations, though competitors' characteristics may indicate business excellence.

8.5.5 Satisfaction Segmentation Analysis

Identifying particular customer clusters with distinctive perceptions and expectations, in order to classify them according to their satisfaction behavior, is a rather difficult task. The most common approach is an "a priori" classification, in which a set of characteristic factors is assumed to be customers' discriminating variables. The problem is more difficult in the case of banking organizations, considering that classical discriminating variables are not always efficient for the segmentation of the total clientele.

The classification analysis presented in this application is based on a general classification according to the type of collaboration with the bank. So, the groups of individual and business customers are examined. This kind of classification is the most widely accepted, and is also accepted by all banking organizations when developing new products and services.

The global satisfaction analysis shows that the overall satisfaction level does not vary between individual and business customers, given that global average satisfaction index is 91.4% and 91.6%, respectively. However, significant variations are observed with regard to the satisfaction criteria, as shown in Table 8.20. The most important results from criteria comparison analysis are focused on the following points:

- Individual customers seem to be quite satisfied from the criterion of "Access", while the rest of the criteria have relatively low average satisfaction indices varying from 69% to 78%.
- On the other hand, the criteria of "Image" and "Service" have the higher average satisfaction indices for business customers, who, at the same time do not seem to be satisfied from the criteria of "Personnel", "Products" and "Access".
- Partial satisfaction comparison reveals that individual customers are more satisfied with regard to the criterion of "Access", while business customers show higher satisfaction for the "Service" criterion. The performance of the other satisfaction dimensions does not seem to vary between the two customer segments.
- Concerning the criteria weights, individual customers consider the criterion of "Access" as extremely important (importance level of approximately 80%), while the "Image" and "Service" criteria are the most important ones for business customers with significant weights of 60% and 19%, respectively.

The maldistribution of the sample for these particular customer segments (see also 7.3.3) may cause some inconsistency problems in relation to the analysis presented in the previous section. Furthermore, it should be emphasized that the low level of weights appearing for some particular satisfaction dimensions does not necessarily mean that these criteria are not important for the customers (see for example Kano's model).

The action diagrams of Figure 8.19 show that there are no critical satisfaction dimensions requiring immediate improvement for both customer segments. The

detailed results from this Importance/Performance analysis are focused on the following points:

- The criterion of "Access" seems to be the most important competitive advantage for individual customers.
- Moreover, the "Products" and "Service" criteria can be considered as potential critical factors for individual customers.
- The "Products" offered and the criterion of "Access" could be potentially critical satisfaction dimensions for the business customers.
- On the other hand, the high global satisfaction level appearing for these customers is mainly due to the criterion of "Image", and more specifically the satisfaction perceived by the ability of the banking organization to satisfy business customers' future needs.

Table 8.20 Weights and average satisfaction indices per customer type

Criteria	Individual		Business	
	Weight (%)	Average Satisfaction Index (%)	Weight (%)	Average Satisfaction Index (%)
Personnel	6.1	77.8	6.7	79.2
Products	5.7	70.9	4.7	66.6
Image	5.3	78.2	59.9	98.3
Service	5.1	68.9	19.2	92.9
Access	77.8	96.4	9.5	68.2
Overall	-	91.4	-	91.6

8.5.6 Concluding Remarks

In this particular application, customer satisfaction evaluation has been applied in different customer segments, given that total banking clientele does not appear homogenous concerning its preferences and expectations. Since the MUSA method is a preference collective methodology, low homogeneity can cause stability problems in satisfaction analysis results.

Moreover, this segmentation analysis may identify particular groups of customers with distinctive preferences and expectations, and so, it may help the development of penetration strategies of the banking organization. Finally, satisfaction analysis in different branches of a bank may be considered as a valid and reliable benchmarking system, in which performance evaluation is not only based on internal organizational measures but also on customer judgments (e.g. financial performance).

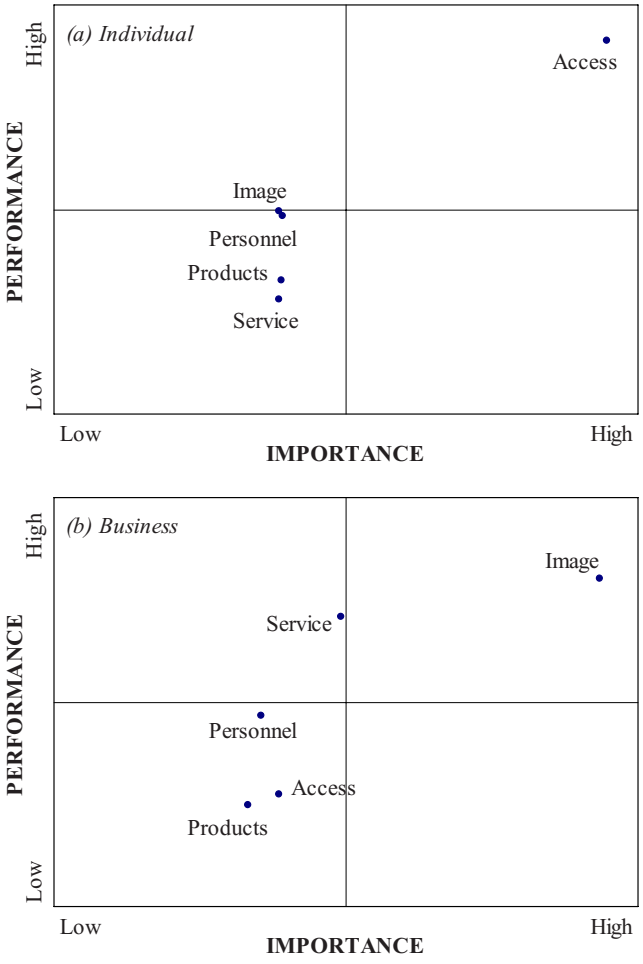

Fig. 8.19 Action diagrams per customer type

The discriminating variables that have been examined during customer satisfaction analysis are the type of customer (individual or business customer), and the visiting branch of the bank. Other discriminating variables that have been examined (age, marital status, income and offered banking products and services) have not shown significant variations (Grigoroudis et al., 2002).

8.6 Other Applications

8.6.1 An industry Satisfaction Barometer

The implementation of the MUSA method for evaluating a customer satisfaction barometer concerns the Greek airline industry. The pilot survey, conducted in the area of Athens during June 2001, was mainly focused on domestic flights. Due to mergers and acquisitions, it is important to mention that only 3 airline companies were operating in domestic flights, during the survey period. Final input data consist of almost 500 questionnaires, collected through personal interviews with customers.

An extensive preliminary consumer behavioral analysis defined 3 main satisfaction dimensions: satisfaction before, during and after flight. As presented in Table 8.21, these main dimensions are defined by a set of analytical quality characteristics/subcriteria.

The results presented in this section are based on a variation of the MUSA method serving as a customer satisfaction barometer model (see section 5.5.1). The results of Table 8.21 show that Greek customers are not satisfied from the provided service, given that the global average satisfaction index has a relatively low value (65.8%). Although the overall average satisfaction index for the quality characteristics during flight has the highest value (78.3%), customers appear very dissatisfied from the service offered before and after flight (average satisfaction indices 56.7% and 51.7%, respectively). Furthermore, satisfaction benchmarking analysis reveals that characteristics related with delays (punctuality, care/info during delays, waiting time on board) may differentiate airline companies. The average satisfaction indices of these quality characteristics show the highest variation within the airline industry (best/worst satisfaction index). Detailed results for the analytical satisfaction subcriteria are presented in Table 8.21 (see also Grigoroudis and Siskos, 2004).

The relative action diagram is shown in Figure 8.20, where all satisfaction subcriteria are presented according to their relative importance and performance (average satisfaction index). This grid can be used in order to identify priorities for improvement and shows that:

- The strong points of the Greek airline industry are focused on the safety standards and the personnel on board.
- The quality characteristics that can be considered as “threats” consist mainly of the price subcriterion and the attributes related with baggage service (handling, delivery time, company’s reaction in case of damage/loss, etc.) and delays (punctuality, departure/arrival time, care/info during delays, etc.).

Table 8.21 Satisfaction indices for the Greek airline industry (%)

Service quality criteria		Industry index	Worst/Best index within the industry	
Before flight	Price	45.2	41.0	55.0
	Booking	72.3	68.0	82.2
	Personnel (ground)	73.5	68.0	86.2
	Check-in	69.3	65.0	79.3
	Care/Info during delays	38.0	27.0	63.5
	Departure/arrival times	60.8	58.0	67.4
	Punctuality	42.0	26.0	79.4
During flight	Safety standards	90.3	81.7	94.0
	Snacks and drinks	62.6	57.0	75.7
	Comfort	72.6	71.0	76.2
	Appearance of aircraft	71.6	67.0	82.4
	Personnel (on board)	86.3	83.0	94.0
	Travelling bag closet	71.3	69.5	72.0
	Noise level	65.9	61.0	68.0
After flight	Waiting time (on board)	62.6	58.0	73.4
	Delivery time (baggage)	49.6	44.0	62.6
	Baggage handling	50.3	46.0	60.4

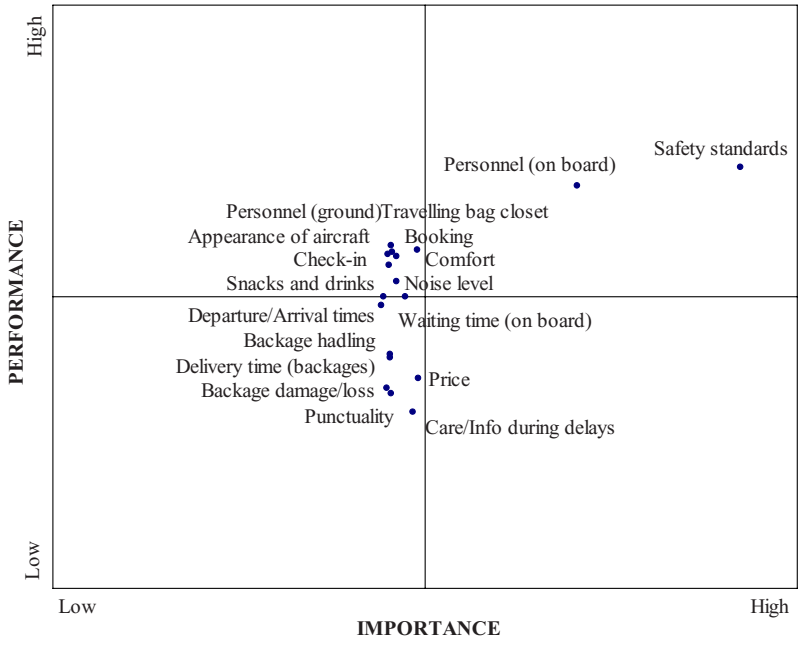

Fig. 8.20 Relative action diagram for the Greek airline industry

The development of a national or industry customer satisfaction barometer constitutes an important effort for determining an overall performance standard of companies and business organizations. The estimated indices usually provide a baseline against which it will be possible to track customer satisfaction over time. These results provide significant information to companies because customer satisfaction ultimately will affect customer retention and, therefore, profitability and competitiveness.

However, as emphasized by Grigoroudis and Siskos (2004), measurement approaches applied in this particular problem may simply provide a comparison standard that organizations have to analyze, considering other performance measures and built their own indicators, taking into account their present situation and strategy.

8.6.2 Application based on Kano's model

The main objective of the application presented in this section is to illustrate the methodology of section 5.4.2 and discuss the modeling of preferences on satisfaction criteria importance.

The applied methodological framework is based on the comparative examination of the relationship between stated and derived importance and consists of two major steps (Figure 8.21):

1. In the first step, stated and derived importance data are collected using a simple questionnaire containing importance and performance judgments (see Figures 4.7 and 5.3). The stated and derived importance of each criterion is estimated through different techniques. Particularly, through performance questions, customers are asked about the level of satisfaction/dissatisfaction from each criterion. Derived importance is then estimated by the original MUSA model. On the other hand, importance questions are used in order to estimate the stated importance on customer satisfaction criteria, using the model of section 4.1.
2. In the second step, stated and derived importance results are comparatively examined through a Dual Importance Diagram that defines different quality levels in agreement with Kano's approach and gives the ability to classify customer requirements (see Figure 5.5). It is possible to identify which attributes the customers rate as important and see how these agree with the truly important and truly unimportant attributes. Thus, it is also possible to determine expected, one-dimensional and attractive characteristics.

The application presented in this section concerns a graphic arts company located in the city of Rethymno (Greece). The survey was conducted during May 2003 and the major satisfaction criteria that were identified and examined are the following: "Quality of the Products", "Pricing", "Customer Service" and "Personnel". Data collection was completed using a simple anonymous questionnaire and

final input data consist of 80 questionnaires. Further details of this survey may be found in Grigoroudis and Spyridaki (2003).

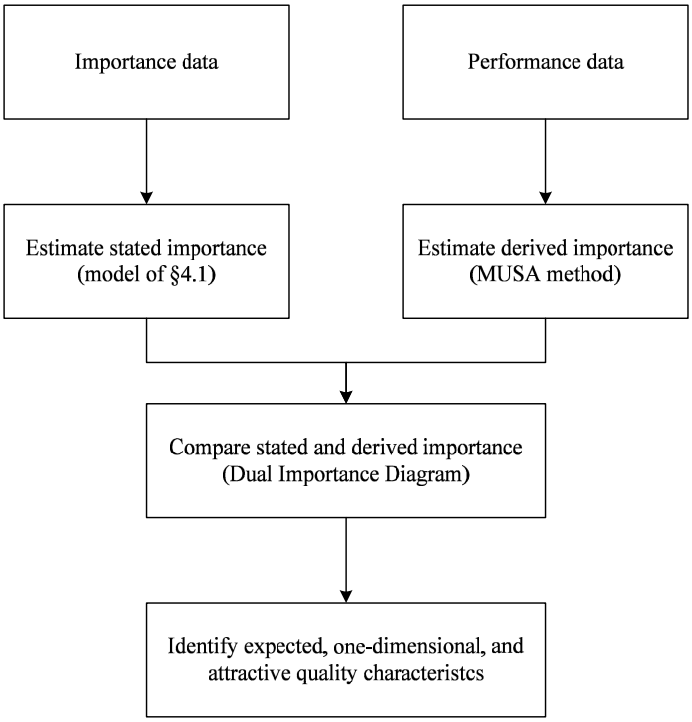

Fig. 8.21 Methodological framework for analyzing stated and derived importance

The final results including stated, as well as derived importance on satisfaction criteria are presented in Table 8.22. It is important to mention that additional analyses have been also performed, using mainly the alternative optimality criteria discussed in section 5.4.1, but no significant variation was found.

Table 8.22 Estimated stated and derived importance

Criteria	Stated importance (%)	Derived importance (%)
Quality	34.67	30.38
Pricing	27.12	18.63
Service	24.68	25.00
Personnel	13.54	26.00

In order to develop the dual importance diagram, these results have been normalized, using the normalization approach of the original MUSA diagrams (see sections 4.3.5-4.3.6). As shown in Figure 8.22, there is an agreement between the stated and the derived importance for the criterion of “Quality” since it is consid-

ered of high importance in both cases. On the other hand, it seems to be a disagreement between the stated and the derived importance for the criteria of "Pricing" and "Personnel". The "Pricing" is considered very important when the customers are asked freely and its weight is comparatively low when estimated by the MUSA method. The opposite may be observed for the criterion of "Personnel". The criterion of "Service" should be further examined, since it is rather difficult to ascertain in which quadrant is exactly located.

Based on the previous results, potential management efforts may be focused on "Quality" and "Personnel" since they are the truly important dimensions according to the MUSA model. Additionally, the graphic arts company should focus its marketing efforts mainly on "Quality" and "Pricing". These are the two most important criteria according to the customers' stated judgments.

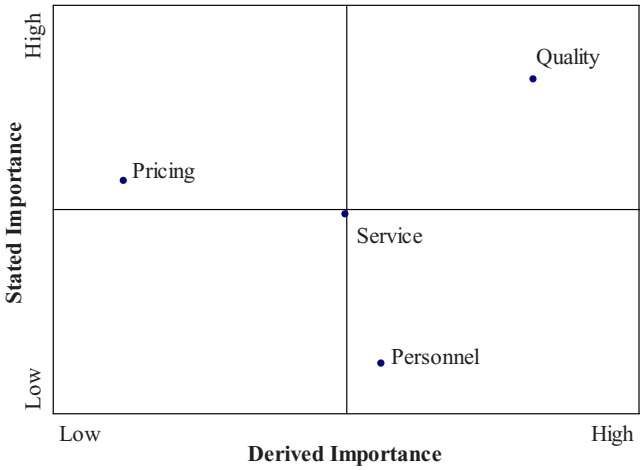

Fig. 8.22 Dual importance diagram for the main satisfaction criteria

Interpreting Figure 8.22 as a dual importance diagram, it is obvious that the criterion of "Quality", which appears in quadrant (i), is one-dimensional (truly important) attribute. This means that an increase in the performance of this criterion will necessarily lead to an increase of customer satisfaction. The criterion of "Personnel" is located in quadrant (ii), which includes the attractive attributes. Thus, a high performance in this particular criterion will lead to high satisfaction, while a low performance will not necessarily imply a low level of customer satisfaction. Finally, the criterion of "Pricing" is located in quadrant (iv), which refers to the attractive attributes. This means that a high performance in this particular criterion will not necessarily imply a high level of customer satisfaction, while a low performance can really cause dissatisfaction.