

PhD THESIS

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**THE CONSUMERS' VIEW ON THE COMPONENTS OF
FUNCTIONAL QUALITY OF BASIC FOODS OF ANIMAL ORIGIN**

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1. PRELIMINARIES AND OBJECTIVES OF THE RESEARCH

The fundamental idea of the dissertation stands *product quality* in centre. The reason is primarily that in the mid 90'ies, a model was developed by S. SZAKÁLY for the market of milk products, which deals with the components of modern quality and also differentiates the fundamental and non-fundamental (in the followings: functional) dimensions of quality. Fundamental quality contains the physical, chemical, microbiological-hygienic and the organoleptic properties of the product. These parameters together form the so-called fundamental quality providing a guarantee for safe consumption. However, today all the foods should bear these parameters, as they are essential to enter the market. Providing only guaranteed quality, the producers cannot have market benefits opposed to their competitors, that is, this level does not differentiate. Market advantage can only be achieved with a product that has additional quality elements beyond the fundamental level and that provides added value to the consumers.

Such advantages are the usage and nutritional advantages, which together form *functional quality*. A usage advantage can be for instance the cold spreadability of butter. The sediment-free chocolate drink, the sour cream free of lumps, or in general the easy opening or reclosability of the packaging are further advantages of use as well. The consumers recognise the usage advantages relatively quickly without any special effort. However, these characteristics can be copied easily and therefore they are less suitable for providing long-lasting competitive advantages.

Nutritional advantages can be e.g. low energy, fat, salt and cholesterol content or fortification with bio-active macro (Ca, Mg) and micro elements (Se), as well as the balanced Ca:P ratio and richness in live microbes. To recognise the nutritional advantage is more difficult for the consumers, therefore effective marketing tools such as wide range advertising is necessary. After handing over the necessary knowledge of

proper nutrition, we can expect that the products providing nutritional advantages will be a success on the market.

This model had been successfully used without changes for years in product marketing researches on the Department of Agricultural Economics and Marketing, University of Kaposvár. Later on, however, it was necessary to re-define it from marketing – especially emotional and consumer psychological – aspects. The zero hypothesis was that the model was not properly usable, because it did not contain quality elements beyond the safety, usage and nutritional components.

It was also considered that the quality model can be applied successfully in marketing strategy only if the theoretical observations are filled with practice.

Thus it was necessary to know the consumers' opinion primarily to answer the following questions: What does quality mean for the consumers? Which components of the product are the most important and which are less important in making decisions on purchasing? These all led the authors to conduct a national research series on the behaviour of the consumers, which is able to provide suitable data for analysis. The surveys were carried out with a focus on milk and meat products, primarily because of their peculiarities and role in every-day nutrition.

According to the human specialists, the health of the Hungarian population is still critical. It is also known that the quality of the nutrition has an important role in maintaining good health and improving life quality; and this effect can be greater in the case of foods. However, it can be seen that the consumption of milk products is far below the physiologically recommended level and the meat consumption has moved towards poultry. Besides, there are unsolved anomalies on both markets, not mentioning the extremely insufficient and sometimes artificially distorted nutritional information. Consequently from the above mentioned, the recent research was influenced by nutritional and human health issues as well. Therefore, it well fits the basic idea of the functional quality model, which emphasises the marketing priorities of the nutritional advantages.

From the aspect of the previously mentioned, the main goals of the research can be defined as the followings:

- Firstly, to *reveal the overall characteristics of milk and meat consumption behaviour in Hungary (completed with certain issues of nutrition and health)*,
- Secondly, to *review the functional quality model, and within the consumers' views on the components of quality of the milk and meat products.*

We believe that the results obtained are useful both for common marketing organizations and produces in order to improve their marketing communication campaigns and provide more effective information for widening the nutritional knowledge of Hungarian consumers and for orienting them into the right direction of nutrition; and last but not least for more success on the marketplace, such e.g. for determining the newest consumer demands and differentiating segments of consumers.

2. MATERIALS AND METHODS

During our researches, two internationally acknowledged methods of the marketing research were applied: the *so called ecoscopic or secondary* and the *so called demoscopic or primary methods*. Secondary market research means the systematic collection, processing and analysis of social and economical-statistical information existing on the market, according to the special targets of the researcher. Primary research means an „original” data recording, because it collects information on the behaviour and opinions of the actors of the market with primary investigations.

2.1. Applied methods of the secondary researches

The ecoscopic researches were focused on the cognition and processing of basic statistics on *human health and food consumption* of different nations. The centre of the researches was the consumption of milk and meat

products and their role in healthy nutrition. Besides, the cognition and processing of international and Hungarian theories, which deal with the issue of *products quality* were additional goals.

2.2. Applied methods of the primary researches

According to the interpretation of the modern marketing, primary market research can be divided into two main groups: qualitative (quality) and quantitative researches. The fundamental goal of quantitative research is to give as reliable *numerical answers* as possible on the questions. In opposite, qualitative research is a *revealing survey*, which tries to recognise the reasons behind the consumers' behaviour, because it focuses on the „*why*”-s.

2.2.1. Qualitative methods

The basis of the survey was the *so called half structured interview and the focus group interview*. Both methods were applied to get professional instructions and ideas for forming the questionnaire that was used in the interviews.

During the interviews, acknowledged scientific experts, R&D decision-makers were asked on *the market processes in milk and meat sector, such as the relations between product developments and corporations, the newest market trends, quality management issues, connections between product development and the consumers' demand and the state and future of the research institutes*.

The aim of the group interviews was to *recognise the attitudes of the consumers on milk and meat products and on the components of quality*. Besides all these, the participants were asked about *functional and organic foods and their use of media*.

The surveys were conducted in the capital and two regional cities (Kaposvár and Nagykanizsa). After a *so called filtering questionnaire*, the invited people were selected into different groups.

2.2.2. *Quantitative methods*

In majority, the research was based on quantitative survey, within it on personal interviews. The preparations and the national representative interviews were carried out according to the following *plan of sampling*.

During the sampling, a thousand individuals were chosen. This size of the sample provided that the subgroups formed by different background variables will provide sufficient members to receive statistically reliable results.

At setting up the samples, the primary aim was to ensure the representativeness of the sample. A many-stage sampling method was created to provide a sample that is equivalent with the basic population in age, gender, graduation and regions.

In order to achieve reliable results, also the randomness had to be ensured. This was provided by the so called random walking method, which gives same chance for each individual to fall into the sample.

The method of random walking was combined with the so called birthday key method in homes, which ensured the randomness in the second step.

Coming from the characteristics of the research, the so called face to face method was chosen with in-home interviews. The questioning was done by prepared commissionaires, whose work was controlled by *random sampling*.

The questionnaire created by our team was built on closed questions, which simplified the processing of the data later on. The majority of the questions had to be answered on a five-stage scale, which is easy to understand and the figures show the opinion of the consumers well. Certain questions provided opportunity to give personal opinions, too.

The processing of the numerous data collected during the researches (more than 220,000) was done by a statistical-mathematical program that best suited for the task. Firstly, the answers had to be coded. The software SPSS for Windows 9.0 calculated the distribution of frequency; cross tables were used to analyse the connections of all the variables with the background variables and the relations among the variables. Besides

calculating the averages, significance testes were conducted with Chi-square test, one-way T test; and for multiple analyses ANOVA, cluster and factor analyses were used.

An indicator of the annual consumption frequency was created to show the frequency of the consumption of milk and meat products. This figure shows how many times a given product is consumed annually in Hungary.

3. RESULTS

There were basically four researches conducted within the frame of the dissertation: professional deep interviews, focus group interviews, processing of the secondary literature on product quality issues and the processing of the information of the national personal interview. Because of the high number of the researches, only the *results of the study with 1000 questionnaire will be shown in details*, out of these, the most important ones will be emphasised and the analysis by the background variables are not shown. The last conclusions of the analysis on product quality issues are built in the model of functional quality, which was set up by the authors.

3.1. The frequency of the consumption of milk and meat products

The consumption of milk and meat products was investigated on a six-part scale, and the results obtained were shown in a partly modified indicator formed by Z. SZAKÁLY (1994). This indicator gives a picturesque view *on how many days or on which days out of the 365 days of the year* are certain products consumed..

In Hungary, the most frequently *liquid milk* is consumed, some 260 times per year. This means that milk is consumed about once in every one and a half day. A similar frequency could be seen in the case of butter, which is consumed 312 times annually. Much lower figure belongs to cheese (151,1), *sour cream* (127,1), *yoghurt* (121), *butter cream* (117,3), *kefir* (81,6); and in the end the flavoured milks (48,4) and milk desserts

(47,7) stand. While liquid milk is consumed in every one and a half day, milk dessert is only once a week.

One data has to be explained here: the high figure of butter. The authors' zero hypotheses were that *a part of the consumers can not differentiate butter from margarine*, they interpret a similar image and use them in similar ways.

For this hypothesis, a hidden statement was used to answer: „margarine is a milk product”. This statement was included in the last third of the questionnaire with similar statements; and the consumer had to mark the degree of his or her agreement on a scale from 1 to 5 (similarly to schools). The results are shown in Table 1.

Table 1.

The degree of the consumers' agreement on the statement „margarine is milk product”, in per cent (n = 992)

Degree of agreement	Totally agree	Rather agree	Unsure	Rather not agree	Totally not agree
<i>total</i>	26,2	16,6	18,0	8,0	30,4

As it can be seen from the data, 40.2 per cent of the Hungarian consumers are convinced that margarine is a milk product! If 18 per cent of the unsure is added, then the share of the misled and unsure consumers is 60.8 per cent. Hardly more than one third of the consumers asked are sure about that margarine is not milk product. Knowing this necessary information, it is not so surprising for the milk sector any more, however, the data of the table much more are.

The first result of the research on meat products is that the participants *consume more rarely meat products than milk*. The highest figure of consumption frequency belongs to the cold collations (148 times per year): this is 112 less times than the frequency of liquid milk consumption. The reasons behind it are reasonable to investigate later on with focus group interviews.

In the order, thus, first are the *cold collations*: these are consumed on every second to third day. Also the consumption of *salamis and sausages* is high (136,7), and that of the *pariser* (112,4) is slightly lower. Than *liver*

pâté, bacon, ham, frankfurter, smoked-cooked meats, and quick-frozen, ready to cook products follows. These later are only consumed in every 8 to 9 days.

3.2. Popularity of milk and meat products

The next question deals with the popularity of certain products. Similarly to the schools, a scale from 1 to 5 was used to mark the degree of popularity of certain products. According to the answers, the following order was found:

Table 2.
*Popularity of certain milk and meat products by the consumers asked
(n = 1000)*

Milk products	Average	Variation	Meat products	Average	Variation
1. Cheese	4,21	0,94	1. Ham	4,00	1,11
2. Sour cream	3,85	1,03	2. Sausage, salami	3,68	1,09
3. Liquid milk	3,56	1,39	3. Smoked-cooked meat	3,45	1,33
4. Yoghurt	3,55	1,37	4. Frankfurter	3,29	1,13
5. Butter	3,36	1,29	5. Cold collations	3,24	1,07
6. Butter cream	3,24	1,33	6. Liver pâté	3,14	1,22
7. Kefir	3,02	1,50	7. Pariser	2,98	1,22
8. Milk dessert	2,98	1,59	8. Quick-frozen, oven-ready foods	2,93	1,25
9. Flavoured milk	2,42	1,37	9. Bacon	2,93	1,31

Consequently from the data of the table, the popularity of *both milk and meat products are lower than the expected level*. The average figures of neither the most popular products (cheese=4.21 and ham=4.0) reach the lower margin of the category „very much popular” (4,5). Even if the figures of category „popular” are interpreted between 3.5 and 4.5, the results are not much better: only the figures of yoghurt, liquid milk, sour cream and cheese and sausages and salamis, and ham reach this category.

In order to analyse the data in more detailed depth, a „positioning map” was created, which show the status of certain products by comparing their popularity and consumption figures.

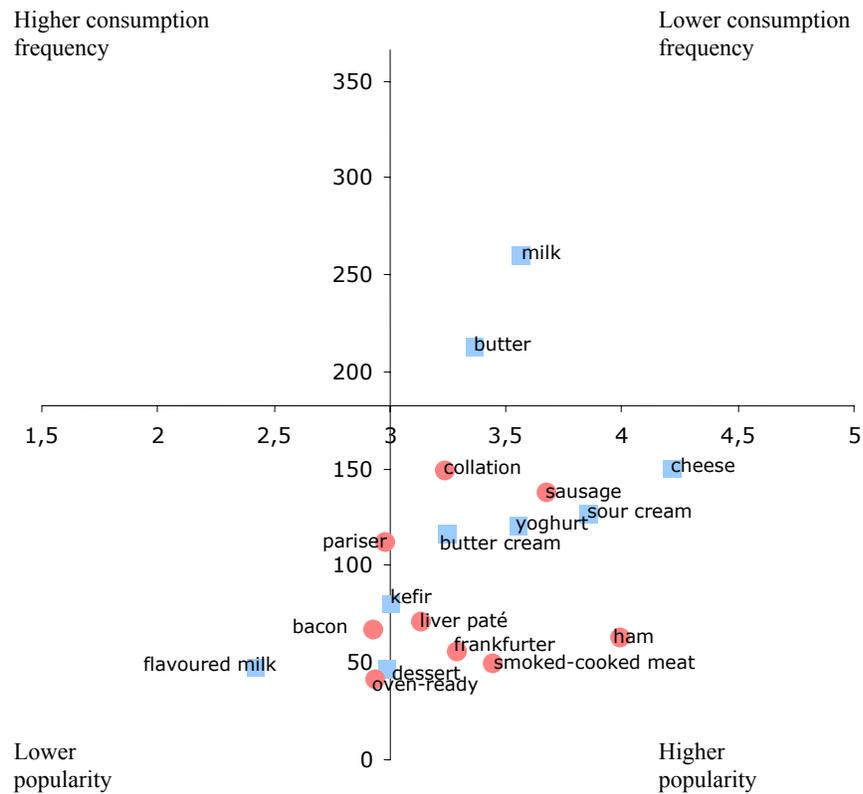


Figure 1.: Perception map of certain products by the frequency of the consumption and the degree of popularity (n = 1000)

According to the diagram, three different groups can be identified. Those products are in the worst position, which are very differently seen by the consumers, because most of these were given the statement that „unsure whether it is popular”. Due to their variation, these were given a scale figure around the medium, therefore these products strengthen the mid-field. Most of these is consumed 45 to 75 times annually, such products are *kefir*, *milk dessert*; and out of meat products, *bacon*, *ready to cook products*, *smoked-cooked meat*, *frankfurter* and *liver pâté*.

The products belonging in the second group are also on the medium level of the popularity scale (*pariser*, *cold collations*, *butter cream*), though

their consumption is more frequent (110-150 times per year). These three products have special chance for changing their position with the change in the consumers' habits. With growing incomes of the consumers and their widening knowledge on health, the situation of the pariser can easily drop, while the butter cream and cold collation can be more popular.

The products with low consumption but high level of popularity belong to the third group. The increase in their consumption is only limited by economical factors. These are *yoghurt*, *sour cream*, *sausages* and *salamis*, and *cheese*. Sour cream – in our opinion – a little bit differs from the others: a possible change in its position is highly related on the changes in the cooking habits and conquest of „*frissfö!*“.

The consumption of *liquid milk and butter* (260, 213) is much higher than that of the previously mentioned products, however their popularity are not even near to the higher figures of the scale. Nor changes can be expected in long term. *Ham* is the third product, which does not fit in any groups: though its popularity is near to that of the cheese, it is only 62 times consumed per year. Its consumption can only increase if the incomes of the population will improve for long term, and then it can easily become a leader product. Flavoured milks seem to be the biggest losers with low figures of both popularity and consumption.

3.3. The health awareness of the consumers

3.3.1. Health as social value

As the first question on health and healthiness of milk and meat products, *the position of health among the social values was investigated*, that is, how important it is for the consumers. More than just proving the expectations that health is one of the first three factors, as Table 3 shows (page 12.), health was told to be the most important for the consumers.

Table 3.

Order of importance of social values (n = 1000)

Social value	Average	Variation	Social value	Average	Variation
1. Health	4,88	0,45	8. Economic welfare	4,24	0,83
2. Happy family life	4,82	0,52	9. More free time	4,07	1,01
3. Quiet, peaceful life	4,56	0,73	10. Spares	4,02	0,93
4. Good human relations	4,51	0,67	11. Using the opportunities of life	3,95	1,00
5. Good social relations	4,43	0,74	12. Travelling	3,58	1,13
6. Self-confidence	4,42	0,80	13. Career	3,47	1,13
7. Happy, enjoyable life	4,25	0,86	14. Religion	2,89	1,31

3.3.2. Health status

The next question asked the *consumers opinion about their own health*. The health status had to be marked from 1 up to 5 by the individuals, where number 1 expressed very poor and 5 very good health status. As the results show, 43 per cent of the people think that their health status is around the average level, 32 per cent thinks that it is better than the average, and 5 per cent says that it is very good. Only 10 per cent says that their health status is worse than the average, and 2 per cent thinks that it is very bad. Eight per cent of the people did not answer, assumably they belong to the previous two categories; although the share of those who are not satisfied with their health status is still low. The following consequences can be drawn. According to the answers of the individuals a much better picture of the health status of the Hungarian population can be seen *than it was expected*, contradicting the real statistical figures.

3.3.3. Healthiness of milk and meat products

The third question belonging to the block of health and nutrition dealt with *the healthiness of milk and meat products*. The results are summarised in Table 4.

Table 4.
The healthiness of milk and meat products according to the opinions of the individuals, expressed on an interval scale from 1 to 5 (n=1000)

Milk products		Average	Variation	Meat products		Average	Variation
1.	Cheese	4,06	1,00	1.	Ham	3,51	1,03
2.	Kefir	4,05	1,07	2.	Cold collations	3,16	1,65
3.	Yoghurt	4,03	1,05	3.	Frankfurter	3,07	1,01
4.	Liquid milk	3,97	1,08	4.	Sausage, salami	3,05	0,97
5.	Sour cream	3,70	1,00	5.	Pariser	3,00	1,05
6.	Butter	3,38	1,07	6.	Liver pâté	2,98	0,97
7.	Butter cream	3,30	1,01	7.	Smoked-cooked meat	2,91	1,04
8.	Flavoured milk	3,16	1,01	8.	Quick-fr, oven-ready foods	2,80	1,06
9.	Milk dessert	3,06	1,12	9.	Bacon	2,42	1,09

Considering firstly the milk products, *cheese* was told to be the healthiest product, which is followed by *kefir*, *yoghurt*, *liquid milk*, *sour cream*, *butter* then *butter cream* and in the end *flavoured milks* and *milk desserts* came. It is surprising that none of the milk products were told to have excellent healthiness. It would have been at least expected that the healthiest products reach the figure 5; however, even the cheese was given only an average of 4.06, which was not really a good result.

In general, the consumers' view was *much worse* on meat products than on milk products. According to the Hungarian consumers, meat products are less healthy and it is shown by the figures (2.42-3.51), too. This fact should be considered by the Hungarian meat sector and urgent steps should be taken. Ham was told to be the healthiest product with a very

unfavourable figure (3.51), then sausages and salamis, smoked-cooked meat, frankfurter, cold collations, liver pâté, pariser, quick-frozen and oven-ready products, and in the end bacons followed.

3.3.4. *The consumers' knowledge and views on market anomalies*

In our opinion, it is worth analysing the parts of the questionnaire on health and nutrition issues, which relates on the knowledge and views on different market anomalies. The reason is that because the majority of these anomalies relates to nutrition and health, thus a wider picture can be achieved on the overall nutritional knowledge. The participating people were given statements, and the degree of their agreement had to be marked in a scale with five stages. In the followings, only two examples will be emphasised out of more than 30 analysed statements.

Table 5.
Degree of the knowledge of the consumers on certain anomalies on the market in Hungary (n = 1000)

Statement	Degree of agreement				
	totally agree	rather yes	unsure	rather not	totally not
„Milk products in general contain preservatives”	32,0	26,8	22,6	9,3	7,9
„Milk products often contain artificial colourings, too”	20,6	23,9	27,6	14,2	11,7

The figures show that 58.8 per cent of the asked people said that the milk products contain *preservatives* and only 17.2 per cent is convinced about its opposite. The views on *artificial colourings* are somewhat favourable, but even in this case, the share of those who thinks that milk products contain these kinds of materials is 44.5 per cent. These two examples well show that an urgent demand on objective information of the consumers exists, and it is necessary to reform the partly insufficient and partly out of date or wrong knowledge and to orientate it towards right directions, which has been already proven by the nutritional science.

3.4. Differentiating quality of milk and meat products

3.4.1. Quality of milk and meat products

Firstly, the authors wanted to know in general, in what extent the consumers are satisfied with the quality of the products. In this aspect, two statements were to judge on a scale from 1 to 5. Of course, the answers reflect on only general views of the consumers, though the following questions provided further opportunities to get a more detailed picture on the consumers' opinions.

Table 6.

*The consumers' view on the overall quality of milk and meat products
(n = 1000)*

Statement	degree of agreement				
	totally agree	mainly yes	unsure	mainly not	totally not
„I am satisfied with the overall quality of milk products”	17,2	49,7	27,1	3,9	1,6
„I am satisfied with the overall quality of meat products”	9,2	35,8	41,3	7,9	5,2

As the figures show, *the people asked are only moderately satisfied with the overall quality of the products*. While 66.9 per cent of the consumers are mainly and fully satisfied with the quality of milk products, this ratio is only 45.0 per cent in the case of meat products. There is especially a lot to do for the poultry and meat sector if this impact wants to be changed.

3.4.2. The consumers' view on the components of quality

As it was mentioned in the definition of the goals, it was necessary to see whether the safety, usage or nutritional components (advantages) of quality have a higher importance for the consumers. From this aspect, 33 and 31 quality parameters were listed for milk and meat products, respectively, for the people asked; and these had to be marked with numbers from 1 to 5 according to the extent of the influence of these parameters on the purchase decisions of the consumers (Table 7., Page 16.). The nutritional components were *typed in Italic*.

Table 7.

The consumers' view on certain usage and nutritional components of quality in an interval scale from 1 to 5 (n = 1000)

Quality components of milk products	Averag e	Variatio n	Quality components of meat products	Averag e	Variatio n
Fresh	4,77	0,58	Fresh	4,80	0,48
Delicious	4,62	0,66	Delicious	4,66	0,59
Excellent quality	4,37	0,91	Appetising	4,42	0,79
Appetising	4,31	0,83	Excellent quality	4,37	0,94
<i>Pure, free of chemicals</i>	4,18	1,13	Long shelf life	4,26	0,93
Long shelf life	4,13	0,99	<i>Pure, free of chemicals</i>	4,21	1,11
<i>Rich in vitamins</i>	4,09	1,04	<i>Health protecting</i>	4,00	1,08
<i>Health protecting</i>	4,07	1,06	Cheap	3,91	1,10
Cheap	3,92	1,11	Wide scale of flavours	3,84	1,07
<i>Rich in minerals</i>	3,91	1,14	Ingredients are shown	3,81	1,21
<i>Well digestible</i>	3,80	1,13	Water retenting	3,79	1,21
Wide scale of flavours	3,79	1,06	<i>Rich in vitamins</i>	3,78	1,24
Water retention	3,68	1,22	<i>Well digestible</i>	3,72	1,16
Ingredients are shown	3,67	1,26	<i>Low cholesterol</i>	3,70	1,24
<i>High Ca content</i>	3,66	1,21	<i>Rich in minerals</i>	3,68	1,20
<i>Low cholesterol</i>	3,60	1,26	<i>Low fat</i>	3,65	1,19
<i>Low fat</i>	3,57	1,23	Made of domestic raw materials	3,60	1,23
Reclosable	3,55	1,27	Trade mark	3,60	1,23
Trade mark	3,55	1,25	Promotion	3,52	1,19
Easy opening	3,55	1,28	<u>Esthetical packaging</u>	3,52	1,08
Promotion	3,52	1,21	<i>Balanced fatty acid content</i>	3,47	1,22
Made of domestic raw materials	3,51	1,21	Easy opening	3,46	1,28
Esthetical packaging	3,40	1,08	Reclosable	3,36	1,30
<i>Balanced fatty acid content</i>	3,39	1,22	Have a variety of size	3,31	1,17
<i>Low sugar</i>	3,38	1,21	<i>Low salt</i>	3,27	1,22
Have a variety of size	3,27	1,22	Branded, well-known	3,23	1,16
Branded, well-known	3,20	1,18	<i>Low energy</i>	3,13	1,20
<i>Live flora</i>	3,16	1,26	<i>Un smoked</i>	3,00	1,28
<i>Low salt</i>	3,13	1,25	<i>Starter culture</i>	2,64	1,16
<i>Low energy</i>	3,10	1,24	<i>Contains soya</i>	2,58	1,25
<i>Un smoked</i>	2,98	1,34	Good advertisement	2,52	1,20
Re-changeable	2,63	1,33			
Good advertisement	2,49	1,16			

As it can be seen well, *the most important first six parameters* are the same in case of milk and meat products, only the order is slightly different. These are: freshness, tastiness, excellent quality (that is not really a parameter but in the usual way it was mentioned with them), appetising, pure (free of chemicals, un-harm for health) and long shelf life.

The freshness and tastiness have especial importance (figures above 4.5), these are the first two parameters in the case of both products in the same order and almost with the same figures. These parameters are *so called critical parameters*, which have got emphasised importance for marketing, because these basically influence the purchase decisions. With medium importance (figures between 3.5 and 4.5), the majority of the parameters were characterised, but a number of other factors are even less important for the consumers, such as brand name, variation of size, live culture, advertisement.

It is typical, that mainly those parameters were told to be important that can be often seen in the media, producers' adverts and numerous offers. The live culture, smoking and fatty acid content, which are not sufficiently communicated towards the consumers, or the sugar, salt and energy content, which has been less advertised for years were given much poorer results in the answers.

The question that was interesting originally for the authors was: whether the safety, the usage or the nutritional advantages are more important for the consumers? According to the figures in Table 7, *the usage and safety components are more* frequent in the first third (first 11 parameter) and their good position is lost only from the second third of the list.

3.4.3. The five-factor functional-quality model

After having reviewed the literature on quality in more details, and based on a research series lasting more than three years (BERKE –TÓTH, 2000; FÁTRAI, 2002) and on the current studies, a *five-factor quality model* was developed, which keeps the previous results, but at the same time adds further components and also re-defines the content of the model.

According to our investigations, the main determining factors of quality are the following: safety (or technical/technological), usage, enjoyment, nutritional and symbolic components (Figure 2, page 19). These components together form the so-called *functional quality*, which refers to the functions of quality groups forming food quality. The two main features of the defined quality-model are that it is function based and the components of the quality are defined from the consumer's point of view.

The following can be stated from the five-factor model: the technical/technological quality contains the physical, chemical, microbiological-hygienic and organoleptic properties. They together provide guarantee for safety consumption.

The *usage components* concern the concrete process of usage, such as the activities needed for consumption, e.g. the way of opening, preparation and serving the food. The function of the usage elements is to improve the practicability of the product: to save time, to enable easy, convenient, and economical use. This definition also keeps the concerning results of the previous model, but it narrows the range of the usage advantages. Price belongs here, too, as a way of reducing costs, though due to its special role – if we speak of psychological price – it can rank among the symbolic components, too.

The function of the *enjoyment elements* is to provide pleasure (directly with the consumption or purchase) and to achieve satisfaction and repletion. Of course, the rapid preparation and good cooking stability can provide enjoyment, but it is rather a useful result of a process. In opposite, the consumer seeks for the enjoyment components with a special enjoyment aim. The fundamental function of the *nutritional components* is to protect the nutritional value of the food and/or improve its healthiness, thus help maintain good human health. The nutritional advantages (properties of the product) known from the previous model are responsible for filling the functions of healthiness.

ELEMENTS	FUNCTIONS	PRODUCT PROPERTIES FORMING THE ELEMENTS
SAFETY	Safety, marketability (correspondence to legal and <i>technological</i> regulations; guarantee for safety consumption – Food Safety)	Physical, chemical, microbiological-hygienic, organoleptic properties
USAGE	Practicability (save time, convenient, easy use)	e.g. cold spreadability, sediment-free, cooking-stable, reclosable, lump-free, longer shelf-life, better price
ENJOYMENT	Pleasure of eating (buying) the food (repletion, satisfaction)	e.g. special, excellent flavour, appetising appearance, inviting packaging
NUTRITIONAL	Healthiness, nourishment (health protection, nutritional value)	e.g. reduced fat, sugar, salt and energy level, higher protein, mineral, fibre and vitamin concentration, easy digestion, freshness
SYMBOLIC	Self-expression, self-realisation (self-satisfaction, cherishment, self-rewarding)	e.g. attractive brand person, good brand value, psychological price
⇓	⇓	⇓
IMAGE		

Figure 2. The interpretation of food quality

In the end, the so-called *symbolic elements* should be mentioned. The function of these elements are self-expression, self-realisation and self-soothing. These can be found on the highest level of Maslow's consumption-pyramid, containing hardly conceivable, emphatic elements that are related to the symbol-consumption. The reasons for consumers to search for symbolic elements are different, e.g. cherishing, soothing, personal involvement, symbolizing status, expressing self-image. It is the task of marketing to give the products symbolic content, and the tools for it can be the brand name, the style of marketing communication, the message of advertisement, the shape of the product, the brand value, or in general, the tools of the marketing mix.

The described quality components and their properties together form the image of the product. The nomination „image” is reasonable, because the image of the products is formed by the parameters and features, which form the overall quality, as a sort of imprint in the consumers' mind. Additionally, the marketing tools and other impulses received from the market also play an important role in forming image but these can be separated from the product and are not directly connected to it. Considering the connection between the quality model and the image, if those product features are focused on, which are the most important for the consumers and the communication and product development concentrate on these, the marketability of the product can be improved efficiently. The question „which are these parameter?” has been already answered in Table 7.

The question “whether it is enough to ensure the freshness and tastiness or these are basic demands of the consumers” rises again here. And whether which are those parameters that give opportunities for differentiating? Maybe we should choose from the first ten parameters, or a less important parameter should be used and communicate its advantage towards the consumers? And, is it possible to make order of the components by their importance? To answer these challenges the data of Table 7 was reviewed and grouped according to the five factor quality model. Figure 3 (Page 21.) show the data on semantic differential scale. The origo is set at the average data of 3.

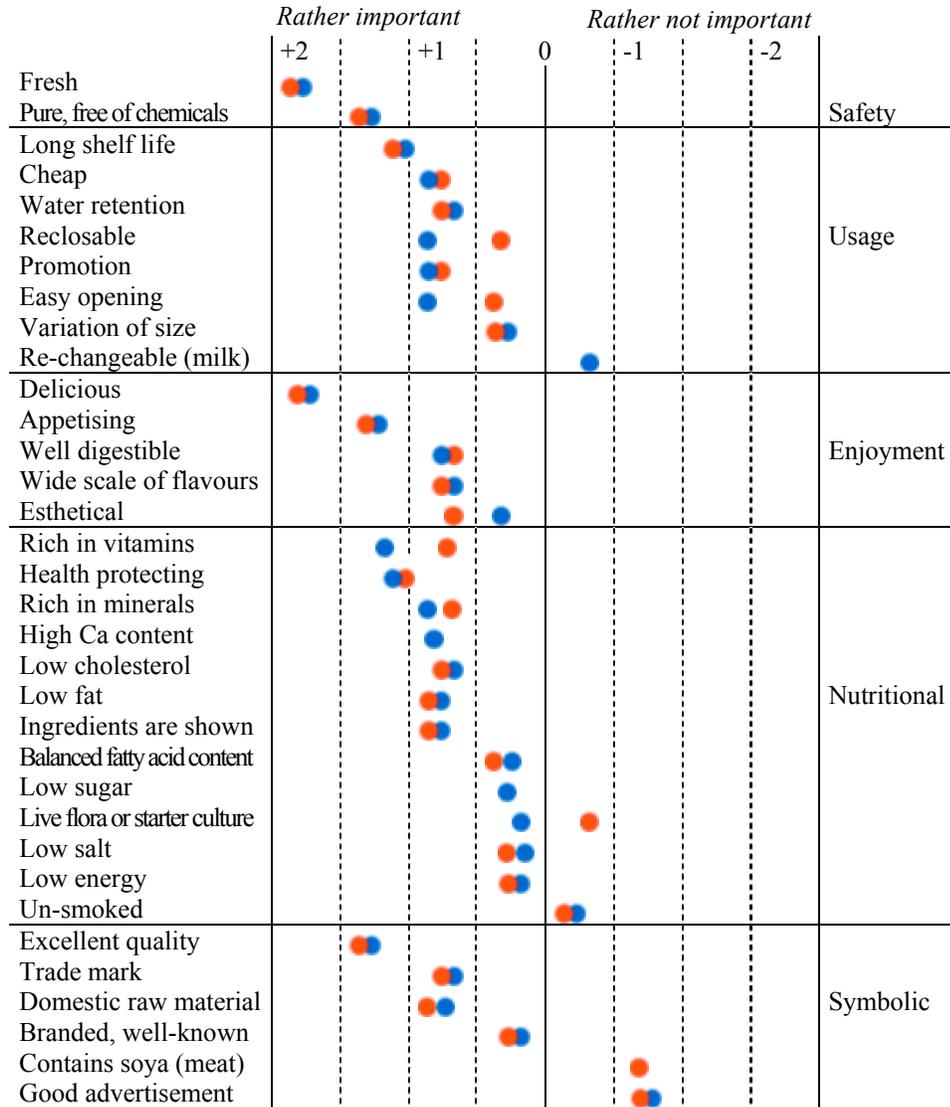


Figure 3.: The position of the components of the five-factor-quality model on semantic differential scale. (Milk = blue; meat = red)

Based on the analysis of the data, three main consequences can be drawn:

- The compared values and the consumption usefulness of the quality parameters is hardly differ from each other in the case of milk and meat products.

- The highest values belong to the safety and enjoyment components, the values are above 4 and 3.5, respectively. This also proves that the consumers have a basic demand on the milk and meat products: that the food is safe, natural and tasty. These all emphasise the outstanding importance of the two components, in also the interpretation that without these two „functions” the other components are unvaluable.
- The usage, nutritional and symbolic components or more accurately their elements are similarly important for the consumers. There are a few parameters with somewhat higher values, but the figures disperse in similar intervals in all the three cases.

3.4.4. The role of quality in purchase decisions

Based on the previously mentioned, the model of consumer behaviour was created, which shows the connection of the image and the consumer, with the components that the authors think to be important (Figure 4.).

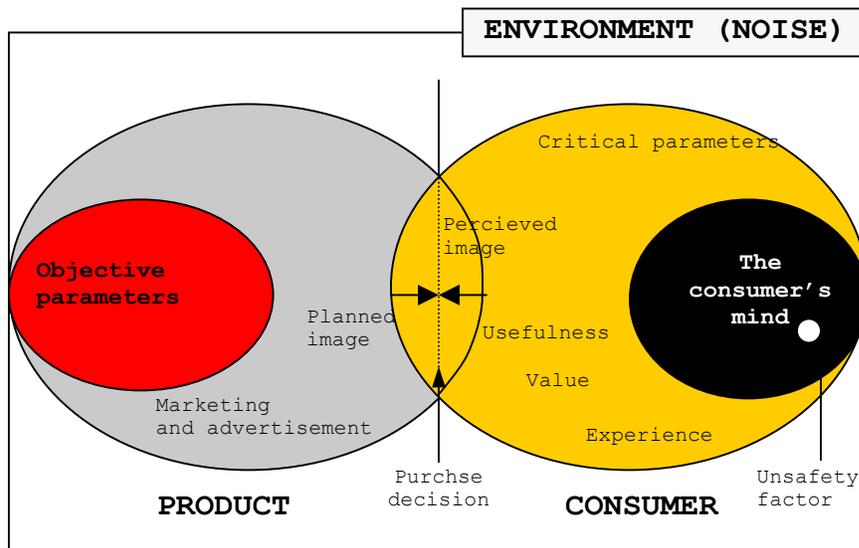


Figure 4: The elements of the connection between the image of the quality and the consumer

The starting situation is that the consumer is in purchasing: he has decided on purchasing certain product (e.g. yoghurt), but he has not decided on the

brand, yet. The differentiating of the quality image can get an important role here: the consumer will decide on the product (or brand) that has *the best perceived quality image*.

There are two poles of the process: the products and the decision. What is interesting are how the consumer perceives the quality of certain product, what processes are induced by the perception and in general, what role the quality plays in the final decision. Let's start with the simpler one that is what we know about the product. *Objective parameters* can be seen of a pure product that is free of emotional features. According to the functional quality, these are the safety, usage and nutritional components. These all are summarised by the *marketing and advertising* strategy, which tries to communicate the differences in the form of advertisement for the consumers. These all together form the *planned image*.

The planned image is a resultant of many components in the consumer's mind. Firstly, the consumer makes an order of the parameters of the product according to their importance. Those parameters that are especially important are the *critical parameters*, such e.g. the taste, freshness, healthiness and the price of the yoghurt. If a product has unfavourable critical parameters, it will fall out of the preference list.

The usefulness and the preliminary knowledge and experiences of the consumer form the *value* of certain brand that in the end leads to *the perceived image* of the product and *an approach* towards the product. This perception is not always the same as the planned image due to numerous factors of the system, but it is the main intention of the producers to harmonise these two.

Whether the intention succeeded or not, will be seen at the purchase decision, when the planned image and the perceived image fights. And it is possible that though the differentiating of the image is unique and the perception of the product is favourable, the success still can not be sure. The decision is influenced in almost all cases by the actual noise, especially the distortion of the information of advertisement, the advertising of the competitor and the selling environment. The effect of the *unsafety factor* has an outstanding importance, too. The consumer is never fully known he

can always make a decision that is unexplainable due to his state of soul, income situation, life cycle or actual thoughts. In the end, the decision is made on that product, which has the most favourable image in the consumer's mind *in given situation and moment*.

3.5. The segmentation of milk and meat consumers by factor and cluster analysis

For planning a more effective marketing strategy in the milk and meat sector and refining the information of the advertising, it was found to be important to segment the consumers asked. A further opportunity rose for analysing the differences in the opinions of the consumers of different segments on the components of the quality model.

To conduct the factor analysis, the most important factors of the five-factor quality model were selected, which the authors thought to be suitable for differentiating the segments. Additionally, the analysis contained certain statements relating on life style, which helped shadow the cluster parameters. Based on the selected 27 variables (after varimax rotation) seven very different factors were created. The KMO (Kaiser–Meyer–Olkin) indicator was 68 per cent in for the 7 factors, which means that the factors explain 68 per cent of the variation. After the cluster analysis of the seven factors, finally four clusters were created, with 953 consumers. These 953 consumers gave 100 per cent, leaving out those who did not belong to any clusters. Cluster A contains 36.2 per cent of the people asked, B 31.9, C 21.5 and D 10.4. In order to treat these segments easily, the clusters were given fiction names similarly to the definitions found in literature. The main characteristics of the factors are summarised in Table 8 (Page 25.).

The characteristics of the segments (n = 953)

Features	<i>Price and quality consciousness, seeking for variability</i> Cluster „A”	<i>Modern, self-conscious, new consumer</i> Cluster „B”	<i>Well-fare, seeking for enjoyments</i> Cluster „C”	<i>Disappointed, pessimistic</i> Cluster „D”
Gender	rather female	rather female	rather male	rather male
Age	mid-aged	younger or mid-aged	younger	elder
Qualification	normal distribution	normal distribution	higher than average	lower than average
Income	Average	Average or higher	Average, but rather higher	below average
The least important points	-	Advertising, restaurants	Price, promotions	Carrier, deliciousness, brand, quality
The most important points in purchasing	High quality, price, advertising, brand name, producer, packaging, health	Deliciousness promotion, high quality, health, family, habits	Deliciousness, brand, excellent quality	Price, promotion, advertising
Which quality component is emphasised?	all	safety and nutritional	enjoyment	usage (low price, promotion)
Life style	The external view is important, enjoy being in centre, optimistic, want the best of everything	health consciousness, family-focused, routine purchase, less open for new things	Stress, hedonism („I still can do anything”), important to show unique personal characteristics	losers of the regime change, home-sitting, introvert, consumer of low social level, seeks for cheap mass products
Key words	Value for price, variability, enjoy life, critic consumer	Family, habits, safety, health	Deliciousness	Cheap

According to the characteristics of the segments, two main statements are emphasised. Firstly, the clusters are not much similar, which is unfavourable for a common marketing and advertising strategy that targets all the segments together. Also the components of quality are differently seen: in the case of clusters A and B, the demand for *health and excellent*

quality can be starting point, while in A and C, the priority of *tastiness* and *appetising*. According to neither its size nor profile, Cluster D is not attractive. It has special peculiarities, out of those maybe the preference of *low price* is necessary to emphasise, which is similar to the demands of cluster A.

4. CONCLUSIONS AND RECOMMENDATIONS

From the aspect of the results of years-old secondary surveys and primary researches, the following should be considered in planning sectorial and institutional marketing strategy for the future.

It is in the fundamental interest of the milk and meat sector to *increase the consumption of the products*. The current level of the consumption is limited by economical factors (price, income) from one side, and by the purchase and consumer behaviour from the other side. In the near future it is expected that the products are going to be more expensive, therefore only a solid increase in real income would lead to a moderate increase in consumption. Greater emphasis should be laid on the change of the consumers' attitude and the improvement of confidential and emotional components of the products with the help of branding, imaging and market influencing tools. In the European Union, the challenges place the increase of domestic consumption and the loyalty of the consumers in front. The strong market-distorting effect of the trade and additionally the fact that both sectors miss a long term and conscious marketing strategy, however, make it more difficult to succeed on the market.

Product development should focus on the product groups that are improving all over the world, such as cheese, functional and organic products. Cheeses should pay more attention on, because e.g. an increase of 1 kg per capita per year in the consumption eliminates 100 million kg milk surplus, and additionally added value appears. In case of meat, the widening of the market can be reached by increasing the consumption of salamis, hams and pâtés, especially with a variation of the supply and in case of natural, functional and organic products. The moderate level of salt and fat

content, low nitrite and nitrate level and fortification in minerals, vitamins, dietetic fibre and health protecting fatty acids and certain proteins should be considered, too. A determining direction of the development could be the production of ready foods, cold collations and pizza, in the future. The government's support to the research and development is elementary to speed up the innovations: the research institutes of the meat sector are in especially bad situation in terms of equipment and machinery.

The corporations have not recognised the importance of *healthy nutrition*, yet. The world novelties relating to human health and nutrition are treated as trends instead of that it is built in the domestic eating habits and everyday dishes. Information work is insufficient, sometimes conscious misleading (or keeping the information back) can be seen, e.g. margarine, breakfast drink. A direct consequence of these is that the under information of the consumers is very high. This type of marketing that is built on bubbles can explode in every minute. It will not be spectacular, but the sector will have to reach out for new advertiseable information and excellent opportunities will be lost (pre and pro biotics). In worse case, the mistakes are revealed by the consumer protection that can have an unfavourable effect on the whole product chain or sector. The corporations should recognise that it is important to inform the consumers, and at the same time, it is obvious that common informational campaigns can result in widening market if a much higher level of financing is provided annually. In communicating the right information, the agricultural ministry, the research and training institutes of the sector, the Agricultural Marketing Centre and the Product Boards should take part.

On the level of *safety component*, today it is not possible to differentiate effectively the products, because it is built in the overall demands of the consumers. Such as the high *enjoyment* value, which also is a fundamental criteria in the purchase of milk and meat products. However, opportunities for improvement are found here, primarily with a wide scale of variations and higher number of products with special flavourings and ingredients.

For getting market advantages, certain usage, nutritional or symbolic components are highly suitable. Any of these are chosen, however, it has to

be considered that only to build the critical parameters in is not sufficient for market success. These are originally expected by the consumers, thus these only have differentiating roles if any of those is missing from the competitive products or their communication is not appropriate.

Today, out of the *usage advantages*, longer shelf life, lower price, brand promotion, easy opening or recloseability can have differentiating effect. This is proven by practice too, by the intentions of the producers on product innovation; such as the „long fresh milk” campaign of Tetra Pack, or the reclosable milk cartoons (Q-Pack) introduced by the MiZo.

In case of *nutritional advantages*, a demand appears which seems to be higher than the average on products with high vitamin and mineral and low fat and cholesterol content. In other words, the interest is growing in those parameters of the products (and the information), which are day by day emphasised by the media, even with real or unreal content. Those parameter though, which are built in the common knowledge without deeper explanations (such as live flora) or have not got greater role in the media (e.g. HIF, Na) do not attract the attention of the consumers. To make these conscious it can be an effective though expensive tool of product differentiating.

The improvement of the *symbolic component* can be useful in each product group but outbreaking success or greater increase of the turnover can only be expected in the case of emotional products. From this aspect it is an important aim to transform as many as possible products into confidential and emotional product, which can use the marketing opportunities more. As the majority of the milk and meat products belongs to those products, which are less interested by the consumers and are basically thinking products according to RATCHFORD (1987), too; this statement can be agreed but to solve the task is not easy. This kind of change in position is seen to be realistic in the case of cheese and ham from the aspects of the current brand strategies existing on the Hungarian market and the results of the current research. This kind of products has appeared on the market in the case of yoghurts, milk desserts and certain brands of dry sausages, but even in these segments further opportunities for improvement and break out can be seen.

Out of the symbolic components, the image and demand of „excellent quality” appears with high value for the consumers. The image of certain products or brand is formed by several factors. The aim is to create a more favourable image in the consumers’ mind: and this assumes accurate planning, processing and marketing work. Considering the image of different product groups, milk sector is in a better position; the meat sector has however a great disadvantage, which can be only eliminated with hard work of long years. The co-ordination in community and corporation level can significantly shorten this process. It can be recommended to establish a financial fund by the corporations, which would be able to finance common advertising campaigns. An excellent example the Society of Producers of Branded Products can be for this, whose national campaigns have succeeded for years. It is an urgent task to recruit the image of red meats and the meat products in general: the results of the last years proved their importance in balanced and healthy nutrition and daily dishes, but this information is available for only a narrow cycle of the professional elite.

The role and marketing strength of *brand names and trade marks* are less important according to the scale figures obtained, though these should not be underestimated. These parameters were not told to be worse than certain usage and nutritional advantages; from the aspect that these are deep psychological factors; this fact is reason for optimism rather than pessimism. The market success of milk and meat product is inconceivable without branding and well planned advertising campaigns. The role of the brands from the other side, is important due to the great bargain strength of merchandising: only those brands have chances for in-listing, unique and better shelves in the stores, which are strong and searched by the consumers.

The trademark „Heart friendly” needs further support because it is still less known. It is useful to design common trade marks for organic and functional (health protecting) products, too; and to inform the consumers, but the further popularisation of trade mark „Excellent Hungarian Product” is also necessary. The consumer safety organizations and their co-institutes, such as the magazine TESZT should take an active part in the introduction and managing of trade marks on the market. A similar intention can be seen

abroad, which reflect on that it is not only the task of the common marketing organisations to organise this activity on the market.

From the *aspects of prices*, the Western European trend that the consumer looks for cheaper products, but wants to buy excellent quality at the same time can be seen in Hungary, too. The cheaper and lower quality products should be kept only for using the capacities (e.g. trade branding). In long term, only those products will succeed, which provide excellent quality, but it assumes a higher price, as well. The consumer is willing to pay higher price even today, if he is sure that he will get added value for extra expenses. This is going to be more the same in the next years. It is reasonable, thus, to replace the low-price-policy with favourable ratio of price and value of the products. Also this later is supported by the fact that unreasonable drop in prices could lead to a change in the image of the whole product group, and it is hard to recover again. It is maybe possible to continue with the low price strategy of the *merchandising* for a while, but high quality products should be offered in time in order to get out of the tight price loop.

In the end, the authors wants to emphasise two parameters from those with low figures on the interval scale. The *packaging and the advertisement*. The influence of these sorts of parameters can not be measured with quantitative marketing research, in the authors' opinion, because these components are psychologically induced and activate in purchase situation. However, considering the high share of impulse purchases and the more and more appealing special in store marketing tools, their importance is not questionable.

In the future, especially the meat sector, should pay much more attention on unique ideas planned according to the targeted groups, and in the common action plans, on the appropriate information, which is also well-communicated, on the emphasises of important information of advertisements, which were not really seen in the last years. Instead of the uncreative, aimlessly humorous adverts in many cases, both sector should focus on the facts, serious and professional approach and the attention on the consumers' interests (health and life quality).

The *media mix* should split from the traditional methods, which preferred only the television as medium. The strategy of the milk and meat processing companies misses an integrated marketing communication. It is the authors' opinion, that the leader meat processing companies (e.g.. Pick-group, Délhús, Kométa) set up more matured and mixed action plans than the milk processing companies. In the later one, Danone and Nutricia should be mentioned, the previous one because of its consequent branding and the relating excellent marketing communication, the later one because of its unique media mix. Also the new MiZo has an active advertising activity, but the creative strategy applied is not sufficient in every aspect. In the future, it would be reasonable to provide a wider (advertising) place for product tests and POP's, which have been already well integrated in the process of imaging.

Summarised, *effective differentiating* needs the followings: excellent basic quality of the product, ensuring the critical product parameters, unique positioning based on well-selected components and its communication with packaging, information of advertisement and well-fitting ATL-BTL. Or as it has been defined several times in the marketing by several people: „the same – in other way”. This is the simple but hard way to the success.

5. NEW SCIENTIFIC AND METHODOLOGICAL RESULT FINDINGS

NEW RESULT FINDINGS

1. The new way of illustration of the *connection between the image and the consumer*, in consumer behaviour model and with the emphasised usage of usefulness and value.
2. *Co-revealing and comparison of the Hungarian milk and meat consumption habits*, with a focus mainly on health and quality, thus the syntheses of these three fields. Within the frame of these, the *positioning map* of certain milk and meat products was created and shown in graph, by comparing the consumption and popularity of the products..

3. It was found with mathematical and statistical methods that *milk products are more frequently consumed, preferred more and thought to be healthier by the people asked than the meat products*. Based on the analyses, *the order of milk and meat product was set up according to the perceived healthiness*.
4. Numerous results have proven that the *nutritional knowledge of the consumers is superficial, artificially distorted; and the number of unsolved market anomalies is high* (e.g. breakfast milk drink, live flora, poultry – red meat). The knowledge of the consumers is *fundamentally influenced by the media*. Within the anomalies, the fact that *a major part of the Hungarian consumers is convinced about that margarine is milk product* was demonstrated with mathematical and statistical methods.
5. The research series behind the dissertation *analysed and revealed firstly* the main components of the connection between the parameters of functional quality and consumer behaviour.
6. After the secondary and primary researches on quality the three-factor functional model founded by SZAKÁLY S was *further developed* and the *five-factor quality-model was defined* and explained, its components (safety, enjoyment, usage, nutritional and symbolic) were investigated in details. *The product components (=components of quality) influencing the purchase decisions were ranked* according to the perception of the consumers and the so called *critical parameters* for marketing were defined.
7. With multiple mathematical and statistical analyses, *four clusters* were formed, which well represent the consumer groups of milk and meat products existing on the market.

NOVEL SCIENTIFIC FINDINGS

1. Despite of that the majority of the consumers is familiar with the advantages (that are advertised in the media) of healthy nutrition they do not eat healthy. One and probably the most important reason is that the factors behind the connection between nutrition and health are not

well known. From the other side, the food safety, the enjoyment value and deliciousness are more important for many of them; and the nutritional recommendations are not considered.

NOVEL METHODOLOGICAL FINDINGS

1. Based on a six-stage interval scale, an *indicator* was created, which expresses the annual frequency of consumption in numeric way.

6. PUBLICATIONS ON THE TOPIC OF THE DISSERTATION

SCIENTIFIC PUBLICATIONS

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1. Berke Sz., Huszka P., Pósa O. Szakály Z.: Az élelmiszer-kiskereskedelem helyzete Magyarországon nemzetközi összehasonlításban. Élelmiszermarketing-tudomány, **1** (3) 2000, 3-17.
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