

**PERCEIVED AND ACTUAL KEY
SUCCESS FACTORS:
A STUDY OF THE YOGHURT MARKET
IN DENMARK, GERMANY AND THE
UNITED KINGDOM**

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EXECUTIVE SUMMARY

1. We define a key success factor as a skill or resource that a business can invest in, which, on the market the business is operating on, explains a major part of the observable differences in perceived value and/or relative costs. The key success factors as perceived by managers need not be identical with the actual key success factors in a market.
2. Depth interviews with managers in yoghurt-producing companies in Denmark, Germany and the United Kingdom showed considerable variation in both substance and degree of detail in their perceptions of the determinants of success on their markets.
3. When aggregated, 16 potential key success factors were derived: High product quality, attractive packaging, high quality of raw material, possession of advanced technology and know-how, competent management and competent staff, wide product range, extensive product development activities/high degree of innovativeness, extensive marketing activities, (abundant) financial resources, scale production, good logistics management, good product portfolio management, non-complex organisation, low retail prices, good relations with trade, extensive market knowledge.
4. According to managers' perceptions, three direct determinants lead to high perceived value: attractive packaging, high product quality, and extensive marketing activities. High product quality is in turn determined by high raw material quality, possession of advanced technology and know-how, and competent management and staff, indicating an emphasis on an objective concept of quality.
5. According to managers' perceptions, extensive market knowledge is the main determinant of good relations with trade, supplemented by extensive product development activities, good logistics management, and extensive marketing activities. Competent management and staff is a major second-order determinant.
6. According to managers' perceptions, scale production, possession of advanced technology and know-how, and good logistics management are regarded as the main direct determinants of low relative costs, with competent management and staff and financial resources as second-order determinants.
7. Managers' perceptions seem to be fairly correct with regard to the determinants of consumer perceived value and good relations with trade. They do not seem to be correct with regard to the determinants of low relative costs.

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THE CONCEPT OF KEY SUCCESS FACTORS

The question of what makes one business more successful than another under identical environmental conditions is at the very core of all scientific inquiry in the area of business administration, and it has been one of the core assumptions of research on business strategy that the match between environmental conditions and firm-specific factors is a major key to explaining differences in business performance. As a result the major task faced by decision-makers in business can be viewed as bringing about this match, by perceiving both the business environment and intra-business factors, interpreting them on the basis of previous experience, and using the knowledge accumulated to make decisions about which skills and resources to develop in the company.

The concept of *key success factors* (also: critical success factors, drivers), which has encountered increasing popularity in the literature on strategic management and management information systems (eg, Boynton & Zmud, 1984; Bullen & Rockart, 1981; Day & Wensley, 1988; Ferguson & Dickinson, 1982; Grunert & Ellegaard, 1993; Hildebrandt, 1992; Leidecker & Bruno, 1984; Ohmae, 1982; Sousa de Vasconcellos e Sá & Hambrick, 1989), is one way of framing this problem of the match between environmental conditions and intra-business factors and the way it relates to managerial decision-making. According to Grunert and Ellegaard (1993), the term has been used in basically four different ways:

- as a (necessary) ingredient in a management information system
- as a unique characteristic of a company
- as a heuristic tool for managers to sharpen their thinking
- as a description of the major skills and resources required to have a successful performance in a given market.

In this paper, we will adopt the last view of key success factors, which basically equals key success factors and second-order determinants of competitive advantage (Day, 1984; Day & Wensley, 1988; Petersen, 1991; Porter, 1980): A company's skills, resources and competencies determine its positional advantage in terms of relative costs and customer perceived value, which in turn are related to company performance in terms of profitability or market share. If there are few skills and resources with major leverage on perceived value and/or relative costs, these will be major determinants of competitive advantage. Grunert and Ellegaard (1993) have therefore defined a key success factor as *a skill or resource that a business can invest in, which, on the market the business is operating on, explains a major part of the observable differences in perceived value and/or relative costs*. This definition implies the following characteristics of the concept of key success factors:

- A key success factor is a causal relationship. It expresses a relationship between the competitive advantage a business upholds in a market, in terms of perceived value and relative costs, and the causes of that competitive advantage, in terms of certain skills and resources.

- Since a key success factor is a skill or resource of the business, it is always actionable.
- Key success factors are market specific, but they transcend strategic groups in a market.
- Key success factors are small in number. By definition, only a small number of factors can explain “a major part” of the variance in perceived value and/or relative cost. This implies that there may be markets where there are no key success factors, but only many small contributors to success.
- Key success factors imply a causal relationship between a skill/resource and perceived value/relative cost. Therefore they are not directly related to performance measures like ROI.

Knowledge about key success factors is or rather would be of obvious practical managerial relevance: if the key success factors in a particular market could be ascertained, this would give useful guidelines with regard to competence development in businesses in the respective market. It has, however, been argued that such knowledge is not only difficult or impossible to achieve, but would also be useless when attained: to the extent that the true causes of success in a market would be understood in such a way that all actors on that market could implement them without difficulty, they would immediately cease to be causes of success, as they would not give anybody an advantage. From the resource-based perspective towards analysing the causes of competitive advantage, it has therefore been argued that only complex and ill-understood skills, resources and competencies can be real sources of sustainable competitive advantage (Barney, 1991).

An intermediate view in this debate (taken, eg, by Grunert & Ellegaard, 1993; and Sousa de Vasconcellos e Sá & Hambrick, 1989) is that causes of success may be moderately stable within clearly defined markets over a mid-term time perspective, that they are partly but not completely understood by decision-makers in these markets, that they are therefore amenable to empirical research, and that a superior understanding of them can improve a company's competitive positioning, at least for a certain period, by leading the attention of decision-makers to areas where investing in skills and resources will have most impact on performance. This then leads to a different view of key success factors, namely to how managers perceive the determinants of success in a market, and how accurate their perception is, ie, to which extent their perception is biased due to limited information, perceptual distortion, and other forms of various cognitive biases (Barnes, 1984; Schwenk, 1988).

The question of how managers perceive key success factors has as of yet not been addressed in the literature on key success factors. To the extent there is empirical research on key success factors, it has focused on the objective causes of differences in success, as exemplified by research in the PIMS tradition, and, at the industry level, the study by Sousa de Vasconcellos e Sá and Hambrick (1989). Subjective causes of success have also been addressed in empirical research in the managerial and organisational cognition tradition, mainly in the way that decision-makers' perceptions of causal links between actions and outcomes have been uncovered by interview techniques and summarised in cognitive maps (eg, Bougon, Weick & Binkhorst, 1977; Cossette & Audet, 1992; Narayanan & Fahey, 1990). These studies have not invoked the key success

factor concept, however, and, more importantly, they have not attempted to compare perceived key success factors with actual ones.

Knowledge about discrepancies between actual and perceived key success factors would have a number of useful practical implications. First of all, providing decision-makers in business feed-back about possible discrepancies between actual and perceived key success factors will contribute to better strategy formulation and implementation. Secondly, this knowledge can be applied in designing market surveillance systems, especially the surveillance of competitors. Often competitor analysis suffers from a lack of framework which helps reduce the abundance of potentially relevant information to a few key items. If one structures information collected in competitor analysis around actual and perceived key success factors, one would obtain information both about competitors' actual abilities to successfully pursue alternative strategic courses and about the assumptions on which competitors are likely to base their strategic decisions. Finally, if we knew to which extent or under which circumstances decision-makers can be expected to perceive the causes of success correctly, this would give researchers valuable information on when an interview with a decision-maker would be sufficient to uncover the major driving forces in an industry.

Measuring "actual" key success factors is, however, an aim which can be approached, but not attained. What can be attained is a confrontation of decision-makers' own perceptions of the causes of success with estimates of the causes of success which have a higher degree of objectivity (Dess & Robinson, 1984). This paper is about an empirical study which had this objective: to measure decision-makers' perceived success factors, and to compare them with estimates about the causes of success with a higher degree of objectivity.

AIM AND DESIGN OF THE STUDY

The aim of this study was to measure, within a selected market, decision-makers' perceived key success factors, and to compare them with estimates of key success factors on this market based on measurements with a higher degree of objectivity.

The overall design of the study can be seen in figure 1. The study comprised three data collection phases. In phase 1, laddering depth interviews were conducted with decision-makers to uncover their assumptions of key success factors. Based on these interviews, individual causal maps were drawn and sent to the respondents for comment. In phase 2, the concepts in the whole set of individual causal maps were coded in order to derive a list of potential key success factors. These potential key success factors were then entered into an implication matrix, which was sent to the same respondents. They had to rate each cell of the matrix with regard to whether they perceived a causal relationship between them. The set of rated matrices was then subjected to a network scaling procedure to derive aggregate causal maps that characterise the set of respondents. In phase 3, respondents rated their own company and their two main competitors with regard to how well they perform on their various potential key success factors. They also rated their own company and the competitors with regard to a number of success measures. Using these data, structural equation models were tested which were modelled according to the relationships found by

network scaling in phase 2. All three phases will be described in more detail in the following.

Figure 1. Overview over study design

Phase	Research task	Data collection	Method of analysis
Phase I	Identification of individual perceived key success factors	Laddering-based depth interviews	Individual causal mapping
Phase II	Identification of aggregate perceived key success factors; list of potential key success factors	Rating implication matrix	Network scaling
Phase III	Comparison of perceived key success factors with estimates of causes of success with higher degree of objectivity	Rating of own company and competitors on success measures and possible causes of success	Structural equation model

SELECTION OF MARKET

According to the above definition, key success factors are market specific. Therefore, the first step in identifying key success factors is to define the market. Two distinct approaches for the purpose of identifying markets are recognised. One is the *top-down* approach which in general reflects the need of corporate management to understand the company or business unit's capacity to compete and the ability to allocate resources to secure a sustainable competitive advantage. The other one is the *bottom-up* approach which is usually employed by marketing planners within the framework of a given product-market. Typically, the emphasis is on issues of product changes, advertising themes, pricing strategies, etc., which imply a narrower tactical perspective (Day, 1981). In the top-down view, markets are typically defined according to *supply* criteria, eg, similarity of manufacturing processes, raw materials, physical appearance, technology, or method of operation, including the identification of cost/investment discontinuities. In the bottom-up view, markets are perceived as shifting patterns of customer requirements and needs which can be catered to in many ways. The bottom-up perspective uses methods that take their point of departure in customers and the functions that are served.

As we are concerned with knowledge about skills and resources of companies and with views about how to allocate resources for investments in these factors, we considered a top-down approach appropriate for an initial market definition in the present project. As an overall product category, we chose foods. The food sector very much displays the characteristics of markets in stagnating economies. In most industrialised countries the growth in food consumption is decreasing. This is due to various factors; one is the fact that growth in both population and individual calorie intake is stagnating. Furthermore, also the share of households' disposable income spent on food is decreasing.

In the food sector, a number of industries are defined by their input of raw material, eg, meat, fish, milk, fruits and vegetables, cereals etc. The milk processing industry, ie, the dairy sector, has dealt with a number of radical changes in its environment in recent years. The introduction of milk quotas by the EC in 1984 was somewhat of a shock to the industry, which was geared toward constant production expansions. The removal of excess capacity caused a restructuring, implying concentration of firms and plants. This development has taken place along with the challenges of the Single Market and a recognition that opportunities for internal growth are minimal, which has led many firms to broaden their horizons from the regional or national to the European (Fitzpatrick, 1990). Due to these characteristics of change and dynamism, we found the dairy industry interesting and chose it as subject for our research.

The market for dairy products of European origin breaks down into two major groups:

1. A consumer market for milk, cheese, butter, yoghurt and other products.
2. An industrial market for dairy ingredients, ie other parts of the food industry, animal food producers, and pharmaceuticals.

The industrial market is characterised as a commodity market and a significant part of the trade occurs outside Europe. This market we will leave out of consideration. The former is characterised as a market for fast moving consumer goods and is heavily dominated by brands. In this market, the dairy industry seems to outperform all other branches in the food sector with respect to new product launches. Particularly in yoghurts, dairy desserts, soft cheeses and other speciality cheeses there has been substantial growth.

Milk is highly perishable, and in order to keep the number of bacteria low, it is refrigerated at the point of production, and, as part of the processing, various forms of heat treatment are utilised. This need for immediate processing combined with the fact that milk contains approximately 87% water – it is expensive to transport water – explains why milk processing mainly has been located close to the point of production rather than to consumer markets. These two factors also explain why the dairy sector traditionally has been relatively technology intensive, leveraging a substantial technological development within recent decades. Fitzpatrick (1990) even advocates the opinion that the dairy industry at least until recently be classified as technology-driven rather than market-driven, which may have contributed to some of the problems related to the preparing for the Single Market.

We take point of departure in a product field that from a technical perspective can be defined as “acidified milk products produced on the basis of yoghurt technologies”. This definition identifies the minimum technologies that suppliers must possess to be in the market, ie the *core* skills and resources, or failure preventers (Grunert & Ellegaard, 1993). When trying to supplement this definition with a description of customer functions and groups, one finds that many specific segments are distinguished on that market (eg, children, fitness, low calorie, indulgence, breakfast, etc.). However, in doing research on key success factors, it is important not to delimit customer segments too narrowly, if key success factors working across strategic groups are to be ascertained. For the purpose of this project we therefore define the customer groups as consumers in general, excluding only the industrial and catering markets. For the purpose of the present research, our market is consequently defined as *chilled, ready-to-eat, acidified milk products produced by means of yoghurt and quark technologies for the end user market*. Companies of interest for this research are therefore organisations within a geographical area that perform as producers and/or marketers of chilled yoghurt/quark products. We are interested not only in companies manufacturing and promoting their own brands, but also those producing own label products. Furthermore, those companies, which in a given geographical market are only represented by a distributor and not a production plant, are of interest, too.

The three national markets selected for the study are Denmark, Germany and the United Kingdom. While national frontiers still play a role in this market, there has been considerable mutual market entry especially among these three national markets. By using this geographical market definition, we define both a group of customers and a group of suppliers, as foreign suppliers can be expected to have at least a sales subsidiary in the country in question. The three national markets will be briefly described in the following.

Denmark. For many years, yoghurt has been a traditional breakfast fare. It is perceived as a bulk commodity and mostly sold in one litre cartons – a package size almost unknown in other markets. However, due to the market introduction of new foreign, high added value and higher-priced products meeting some of the more special customer requirements, a major shift in the market demand structure has occurred. The sales of one-litre yoghurts now account for only approximately 60% of the total yoghurt market. In the supermarkets, the one-litre yoghurts are now often on offer to attract customers, rendering the profit margins on these products very low. As a result, the Danish yoghurt market may be an example of a market where the actual key success factors may have changed and may therefore not be equal to the key success factors perceived by the market actors.

In Denmark, the dairy market – not only the yoghurt market – is characterised by having only very few actors. Two large dairy companies hold the major share of the market, and within yoghurts they hold approximately 80% of total volume, although only 50-60% of total value. Distributors of French and German yoghurts have been able to win market shares by means of products packed in much smaller units, doubling or sometimes even tripling the litre-price of the traditional one-litre yoghurts.

Germany. In Germany, the market for yoghurt has grown consistently throughout the second half of the 1980's. Trends seen in this sector include the growing

popularity of low calorie products and a corresponding decline in the sales of cream-based products, indicating that consumers are becoming more health conscious. In Germany, we find eight to ten nation-wide marketers and a high number of local yoghurt-producing dairies. The top four companies account for approximately 50% of market value with a further group of three achieving 15-20%. Within each group market shares are fiercely contested in an effort to gain leadership, with positions liable to change at regular intervals. The large dairies advertise heavily in television and magazines, and they appear to have different target segments, eg, children, young active families, elderly people, or young and educated women with high incomes, respectively (EIU, 1992), indicating that they pursue focus strategies.

The United Kingdom. Until the mid-80's, yoghurt represented a relatively limited market in the UK, but by the end of the decade the consumption had doubled. According to Gains and Gutteridge (1991), a preference map of nine yoghurts showed that British respondents could be divided into three "populations", where the product attributes determining their respective preferences were (1) thick/creamy, (2) natural, and (3) low fat. The market consists almost exclusively of single portion pots with specialised and sometimes very dessert-like yoghurts.

Historically, the UK yoghurt market has been dominated by two domestic dairy concerns, though, within recent years, the market has experienced something of a shake-up with German companies gaining substantial market share at the expense of the previous market leaders. With the increasing power of the retail chains, own label products have become a widespread phenomenon, so that many yoghurt producers do not produce their own brands but anonymously supply the large chains.

It is characteristic for all three markets that some level of saturation of yoghurt consumption in terms of volume has been reached. The competition for market shares has consequently become more severe, and, within recent years, a lot of new products have found their way to the shelves showing a shift from standard products to higher value-added products. A general break-down in family eating patterns, growing health awareness, and a number of diet issues may be reasons for these shifts. These similar trends on all three markets warrant them to be regarded as a subset of an overall European market.

PHASE I: LADDERING-BASED DEPTH INTERVIEWS AND INDIVIDUAL CAUSAL MAPS

Theoretical background

In this part of the study, we are interested in decision-makers' ways of understanding the world. Put another way, we are interested in decision-makers' hypotheses about how various entities in their environment together determine the success of a company. These hypotheses have been formed over time based on their own experience and information from others. They are embedded in and have become part of decision-makers' *cognitive structure*. We are therefore interested in measuring the part of decision-makers' cognitive structures, which refers to *causal relationships between – on the one hand – cognitive categories*

designating skills and resources a company may have, and – on the other hand – cognitive categories designating indicators of a company's competitive position.

Various types of models have been developed in cognitive psychology to describe cognitive structures, the most popular ones being network models and schema models. Networks have been most popular in research on organisational cognition (Fiol & Huff, 1992; Huff, 1990). In a network model, cognitive structure is modelled as a set of nodes and links, where the nodes represent fragments of knowledge, ie, cognitive categories, and where the links represent associations between them; these associations may be of various kinds, causality being one of them (for basic theory on network models of cognitive structure, see Anderson, 1983, Grunert, 1994; Norman & Rumelhart, 1975). Network models have been criticised for not being adequate for the handling of imagery, and for being limited to only semantic information as opposed to episodic, ie, time-place-specific information, which is more easily handled by schema models (Rumelhart & Ortony, 1977). In this study, we are interested in decision-makers' general conceptions about causes of competitive advantage, which is a subset of semantic knowledge. As a result we therefore found it appropriate to adopt the network model.

The question whether cognitive structures can be measured at all has been subject to quite some debate, both in psychology and in the literature on managerial cognition. One view is that a cognitive structure is unobservable, and that the results of, eg, an interview with a decision-maker, are a combination of his/her cognitive structure with cognitive processes heavily influenced by the interviewer and by the situation so that the result is a mirror of the specific situational transaction rather than the respondent's cognitive structure (see, eg, Cossette & Audet, 1992). The other view is that, by trying to understand the cognitive processes occurring during an interview situation and designing interview techniques which make them transparent, estimates of the respondents' cognitive structures become possible (Grunert & Grunert, 1995).

In this study, we assume that it is possible to uncover relevant parts of respondents' cognitive structures by appropriate interview techniques. The technique we have chosen is a laddering-based depth interview.

The laddering technique

Laddering is a qualitative interview technique designed to uncover causal cognitive structures. It was developed and is mostly used in marketing-oriented consumer research (Reynolds & Gutman, 1984, 1988), where it is the methodological supplement to the means-end chain theory of consumers' subjective product meanings (Gutman, 1982, 1991; Reynolds et al., 1984). This theory holds that products can be thought of as *means* of achieving values underlying consumer needs, ie, *ends*. Therefore laddering attempts to elicit *means-end chains* that explain how a person's selection of a product or a service enables him/her to achieve a desired end state. The interview procedure is the following: first the respondent generates concrete attributes that differentiate the products in a given product group. Next, the respondent will be asked about his/her preferences with regard to those attributes, and by means of keeping asking him/her "why is it important to you..." it is possible to push him/her up a ladder of abstraction – a ladder that may also be described as a means-end chain.

Perceived key success factors can be regarded as a type of means-end chain. A decision-maker may regard a certain skill or resource in the company as a means to reaching an end, namely to create customer value at low costs. In addition, various skills may be causally related to each other, as when personal skills are related to market knowledge. We therefore propose that decision-makers' cognitive structures of key success factors can be conceptualised by the means-end concept, and that a revised version of the laddering methodology may be applicable for ascertaining them.

Laddering's most important virtue is that the collection of raw data is driven by the respondent's cognitive structures and processes rather than by those of the researcher. With any data collection method that does not allow the respondent to use some kind of natural speech, there is a risk that the collected data reflect the researcher's perceptions or ideas rather than those of the respondent. At the same time, laddering goes beyond traditional depth interviews by imposing a theory-based structure on both the interview itself and the subsequent analysis.

Laddering can be conducted in various ways. A rough distinction may be made between the "soft" way and the "hard" way (Grunert & Grunert, 1995). Hard laddering imposes a strict structure on the data collection and forces the respondent to follow the means-end model both in terms of content and of structure. This is used, eg, in the context of computerised data collection devices. But also personal interviews may differ in their directness. The soft way allows the respondent more freedom with regard to both structure and content, and the interviewer will use the means-end model to structure the information afterwards. The soft approach is potentially better when the respondent's cognitive structures within the area of interest are either particularly weak or particularly complex. It is, however, obvious with the soft approach that the extent of cognitive processing on the interviewer side will increase, because the interviewer/analyst has more latitude in structuring the data.

We have employed the laddering technique to support the elicitation of decision-makers' cognitive structures regarding the causes of success within the chosen market. Since this topic is of some complexity and is very central for the decision-makers interviewed, we have adopted a "soft" version of laddering. The respondent may start by specifying some success criteria and how the main competitors differ with regard to these criteria. Then the interviewer may ask "how does a company achieve..." or "what causes..." until the subjective causal chain seems exhausted. Note, that this variant of the laddering method starts with the "end", ie, having business success, and then tries to identify the means necessary to reach this end, whereas the typical use of laddering in marketing-oriented consumer research goes in the opposite direction: product attributes are elicited as potential means, and the laddering interview tries to uncover related ends.

A similar approach has been used by Armstrong and Eden (1979) in the context of an exercise in team development for a group of officers in an organisation. For the purpose of eliciting constructs that could describe the officers' occupational goals, each of the interviewed officers was asked about the expected outcome of a recent activity. Then the interviewee was asked to describe the purpose of attaining that outcome. The answers were probed by continually asking "why", until the interviewee struggled to respond.

Selection of respondents

Relevant potential respondents in the companies of interest were defined as those responsible for the marketing or sales functions. We believe that these are the decision-makers in the yoghurt companies that have the best knowledge of the prerequisite of success on the market in question. Admittedly, this may cause some bias in the evaluation of the skills and resources needed, but we perceived the decision-makers to be best qualified, as we assume that monitoring the market is a natural part of their occupational task. They can be expected to have cognitive categories and associations that are strong enough to allow an elicitation of causal chains.

Denmark

The number of yoghurt producers in Denmark is limited. The Danish dairy trade organisation provided a complete list of Danish dairies; all production sites were contacted by telephone to find out which produced yoghurt. In the yoghurt producing companies, the persons responsible for marketing/sales of yoghurt products were identified and approached. In companies importing and distributing yoghurt, the relevant persons were contacted as well. These persons were given an oral introduction to the subject, and they all agreed to participate in an interview at their own offices. A brief written introduction to the subject matter was sent to the respondents together with a confirmation of the meeting arranged. Only one of the persons approached declined to participate.

For each of the approached companies we tried to identify at least two potential respondents. This objective, however, was only achieved in two cases, as in most companies there was only one person that could be pointed out as knowledgeable about the yoghurt market. 11 interviews were conducted in Denmark.

Germany

In Germany it was not possible to obtain a complete list of dairies and/or yoghurt producers. From market reports, food fair participation lists, and from talking to trade organisations, a list of 24 yoghurt producers was compiled. Only producers with a certain degree of national visibility were included, as measured in terms of market shares, market coverage, advertising, etc. Also, indications that a major part of a company's sales stemmed from yoghurts would qualify that company for our list. The list included the suppliers of nation-wide brands as well as a number of local producers. Inquiries at the company switchboards helped identify the persons responsible for the marketing of yoghurt.

The potential respondents were approached by mail with a general introduction to the project. The letters emphasised that the project was financed by a government grant and did not serve the commercial interests of any specific company. The anonymity of the companies, the decision-makers and their contributions was guaranteed. In the letters we proposed a meeting and stated that we would follow up on the proposal by phone. During the follow-up process we managed to finalise interviews with 10 decision-makers in 10 different companies.

The United Kingdom

As in Germany, a complete list of UK producers was not at our disposal. Instead, potential British respondents were approached at the 8th International Food & Drink Exhibition held in April 1993 in London. All exhibitors mentioning yoghurt in their product list were contacted and managers in charge of sales and marketing were given a general introduction to the project. Also, they were given a written introduction that corresponded to the letter sent to the German potential respondents. The appropriateness of each exhibitor's potential contribution was discussed and we asked for permission to call them on the phone at a later point in time to set up an appointment for an interview in their offices. This permission was given by all the persons contacted.

Based again on the criterion of visibility on the market, eight decision-makers were subsequently contacted by phone. All the persons approached consented to participate and meetings were arranged. Furthermore, some additional companies/persons that had been identified as potentially interesting respondents were approached by mail. In the follow-up phase on these some refused to participate. Altogether 12 interviews were carried through.

Data collection

The interviews in Denmark and the UK were conducted by one of the authors, whereas the interviews in Germany were conducted by a local team of researchers*. The German interviewers were trained by the authors in the interview technique, and test interviews were run. In Germany, each interview was conducted by two persons, whereas in Denmark and in the UK, there was only one interviewer at each interview.

Each interview opened with a general presentation of the project, and a brief summary of the theoretical reasoning behind the research was given. Furthermore, the purpose of the interview was specified – elicitation of the respondent's personal views on success achievement in the yoghurt market in her/his own words – and the mode of interviewing was explained.

As the respondent had to do the talking, the interviewer's role in the interplay with the respondent it was attempted to reduce to two tasks: (1) clarifying unclear or ambiguous statements, and (2) guiding the respondent in the translation of causes of success mentioned into terms of skills and resources within the company. The interviewer's task was to probe the respondent's statements and tie loose ends to fully disclose the respondent's ideas about the topic. Anticipating that the fulfilling of these tasks could make the interviewer look immensely naive, the preferred role of the interviewer was explained already at the introduction.

To start off the actual interview, the respondent would typically be given a question like: "What do *you* think it takes for a dairy company to be successful in the yoghurt market?" From this initial question, the respondents were encouraged to elicit – with their own words – the reasons for success in their

* We would like to thank the MARTA Marketing Transfer GmbH, Rostock, for their excellent collaboration in this part of the project.

respective national markets, producing causal chains that explain the achievement of success. In this way, it would eventually be disclosed what kinds of skills and resources a dairy company, according to the respondent's view, should possess to be successful in the yoghurt market, but also some subjective meaning structures on how these factors were connected with perceived value and relative costs – and with each other – would be revealed.

Derivation of causal maps

The interviews were tape recorded if the respondent agreed; only very few respondents refused to give permission. When permission was refused, we had to rely on notes made during the meeting. From the tape recorded interviews, maps illustrating each respondent's perception of how success is best achieved in the yoghurt market were derived. Categories mentioned by each respondent and how they were causally related to other categories mentioned, were noted based on repeated listening to the tapes. In this way, *causal maps* (cf. Huff, 1990) were created, ie, maps that show how the perceived key success factors were interlinked. The purpose of these maps was to derive a synthesis of the categories constituting each respondent's perception of causes of success in the yoghurt market, which would provide suitable material for the subsequent coding procedure. Secondly, the map was used as a validation device by sending it to the respondent for comment.

Based on our definition of key success factors, the drawing of each map took point of departure in the two target variables "perceived value" and "relative costs". It was assumed that these two variables mediate any relationship between skills and resources and business performance measures (Day & Wensley, 1988). In this way we do not have to commit ourselves to one definition of success and business performance. Also, the fact that a present competitive advantage in terms of perceived value and relative costs may turn into superior performance only in a later period suggest the use of perceived value and relative costs as target variables, and not as performance measures. It was therefore sought to link the topics of the interview to the two factors "perceived value" and "relative costs" by means of causal chains or causal networks. Actual measures of success or performance had only occasionally been explicitly stated in the interviews, and in situations where respondents asked for a definition of "success" we let them choose their own preferred measure. The linkage of the categories mentioned to the target variables "perceived value" and "relative costs" is therefore, in contrast to the rest of the causal maps, based on the researchers' inference. In most cases there was actually no real doubt about how to connect the categories mentioned to either perceived value or relative costs, as it was usually clear which variable the respondent referred to in his/her explanations of success achievement.

One group of categories caused some problems integrating them into maps. It related to the importance of "being on the shelves" in the retail outlets, the efforts implied in the act of "getting the products out there", some also talked about "how to please the retailers". These categories express concern about the distribution of the products, and it was a very prevalent concern, mentioned by literally every respondent. From the interviews it was clear that "being on the shelves" was so important an issue that it was mostly treated as a goal in itself, without any links to perceived value and relative costs.

This is related to the fact that perceived value was conceived in terms of the end user, and that on food markets retailers act as major gatekeepers between producers and consumers, a function which the concentration in the retailing sector has made more important. We could have circumvented the problem by defining perceived value in terms of the producer's immediate customer, ie, the retailer, but would then have neglected that value perception at the end of the food chain, ie, by the consumer, sets the limits for the competitive position of all previous members of the food chain, both retailers and producers (Grunert, Hartvig Larsen, Madsen & Baadsgaard, 1996). While retailers' value perception and purchasing behaviour will be guided by their perceptions of perceived value at the consumer end, these perceptions may be distorted, and they will have additional criteria determining a product's attractiveness for them. At present, the area of retailer decision-making is under-researched and not well-integrated into models of competitive advantage.

We solved the problem by considering the notion of "being on the shelf" as a necessary condition for any consumer value perception to take place.

The causal maps clearly revealed that a lot of respondents had many categories in common or mentioned categories that were almost similar. This is not surprising, as it is assumed that a decision-maker's perception of determinants of success is influenced by – but not necessarily identical with – the actual determinants, so that different decision-makers' perceptions are likely to share common categories. Differences between the maps were particularly evident with regard to the number of categories and to some extent the complexity of the structures.

This is illustrated by the examples of causal maps in figures 2-6. Figures 2 and 3 show maps elicited from interviews with respondents where decisions related to the production or marketing of yoghurt constituted only a minor part of these respondents' activities. For example, in figure 3 the respondent was a general manager and consequently also generally responsible for all sorts of tasks in the company, and, with the respondent in figure 2, it turned out during the interview that the yoghurt production constituted only a marginal part of that company's activities. Compared to figures 4 and 5, which illustrate the cognitive structures of decision-makers whose occupational tasks were specifically related to monitoring the yoghurt market and making decisions related to this product field, it can be seen that the number of categories included in the map is lower and that the structure is less complex.

Figures 2-6. Examples of individual causal maps

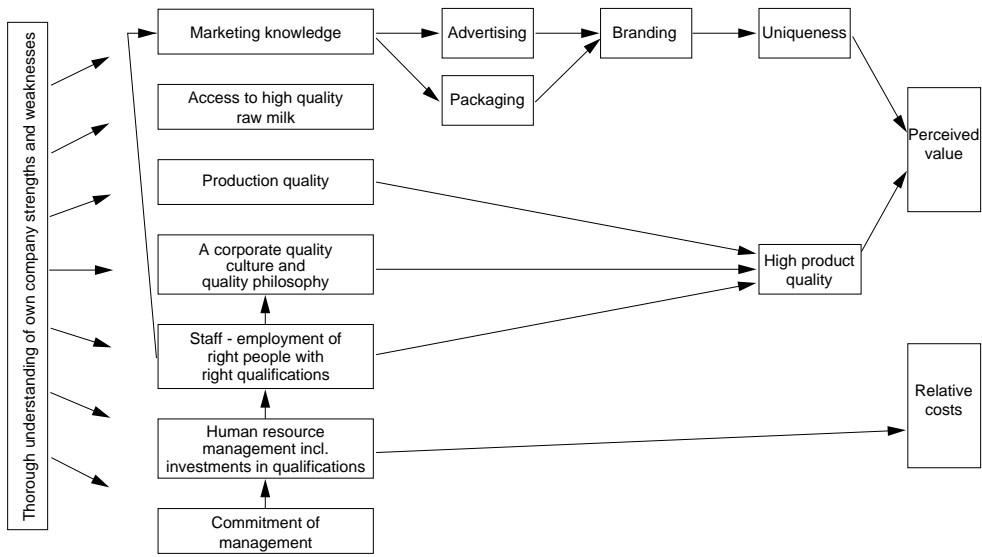


Figure 3.

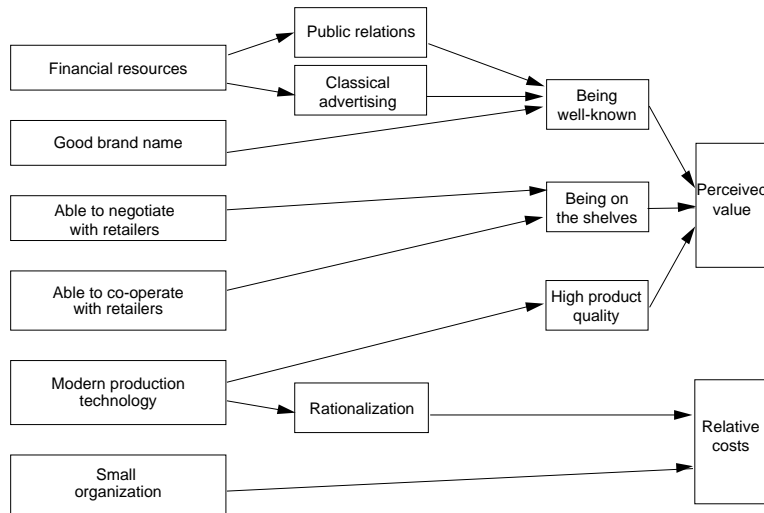


Figure 4.

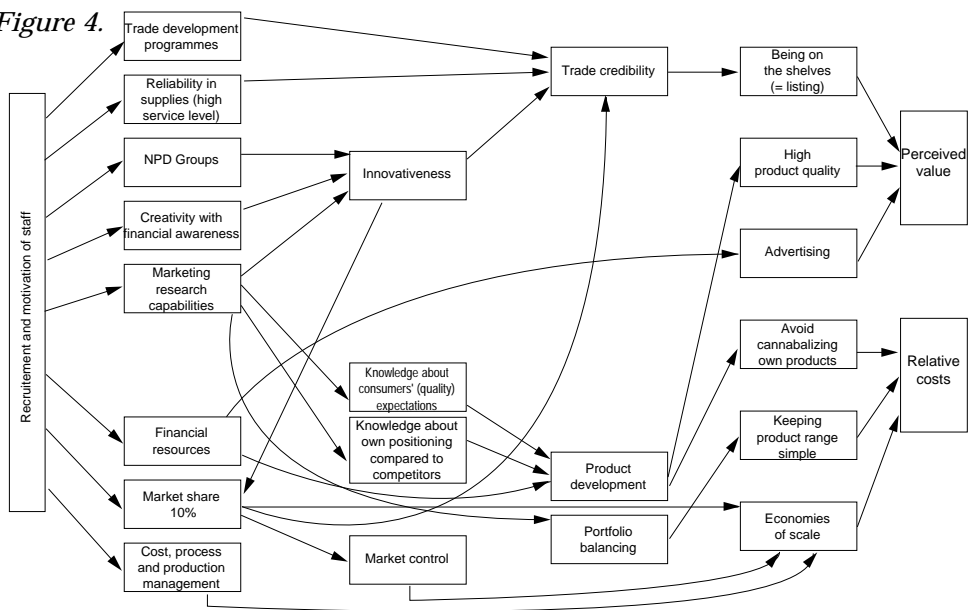


Figure 5.

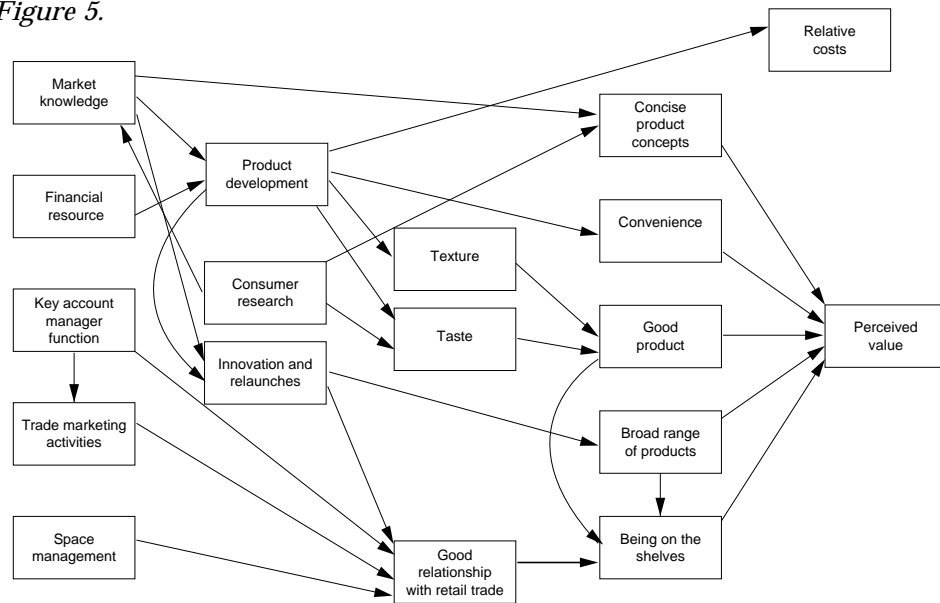
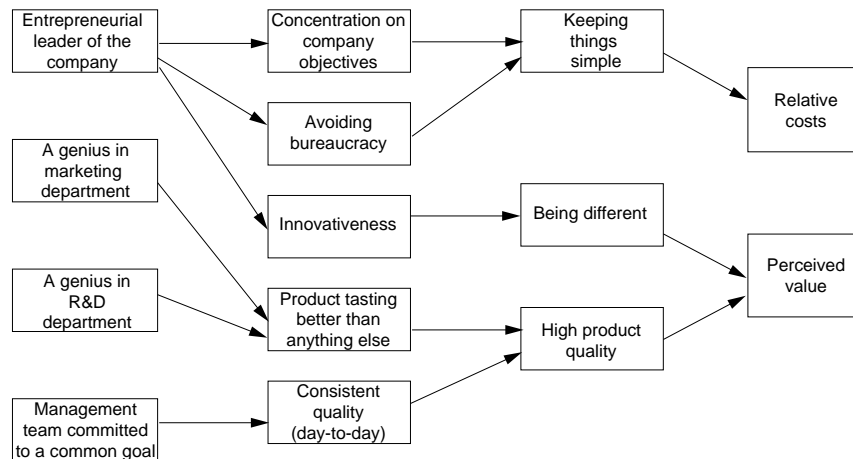


Figure 6.



A general characteristic of the maps is that the number of categories linked to *perceived value* – directly or indirectly – is higher than the number of categories linked to *relative costs*. This may be a result of the fact that respondents' occupational tasks in a majority of the cases related to marketing functions rather than controlling functions. This observation resembles the findings of Lines and Grønhaug (1993), who in a review of antecedents to environmental orientation of individual managers point to the importance of work experience and intensive exposure to specific tasks and activities as factors influencing decision-makers' thinking or cognitive processes about specific issues. Lines and Grønhaug (1993) also emphasise the importance of departmental affiliation, the reasoning being that because tasks and activities vary across departments, experiences and thinking will also vary. When considering top managers, Lines and Grønhaug find it reasonable to assume that they, due to their tasks of guiding, directing, and co-ordinating the activities of the various departments and functions in the whole organisation, develop less a focused orientation than do departmental managers.

However, the complexity of a map or the number of categories is not in itself to be taken as a valid measure of the respondent's degree of knowledge. Figure 6 represents an interview with a respondent who, judged by various external cues (job experience, departmental affiliation, tasks, company characteristics etc.), could be considered very knowledgeable in his field. This respondent was, however, so conscious about the means of success in the yoghurt market that he was able to summarise his ideas in a very few words and categories. Therefore, the map from this interview does not appear to be as complex in structure and rich in categories as the maps in figures 4 and 5.

In order to check reliability in the process of interpreting verbal data on cognition, it is common to employ multiple coders (see eg Boland et al., 1990; Narayanan & Fahey, 1990; Reger, 1990). In our study only one coder undertook the derivation of the causal maps. In order to check for measurement errors, the maps were sent to the respondents for comments. None of the respondents in their replies stated any disagreement with the interpretation nor did they add further comments.

PHASE II: IMPLICATION MATRIX AND AGGREGATE CAUSAL MAPS

Aggregation and quantification of causal maps

The aim of the data collection and analysis in phase II was to derive an aggregate, quantitative estimate of a group of respondents' perception of key success factors in the yoghurt market. There are two basic ways to address such a task.

One way is to start with the individual causal maps described in the preceding section. The various concepts in these maps could be coded into a smaller number of categories, and the individual maps could be redrawn using the new codes. All individual maps would then only contain links which are a subset of a total set of possible links defined by the cells of an implication matrix, ie, a quadratic matrix with the coded categories defining both the rows and the columns. The occurrence of all links across the individual maps can then be recorded in the implication matrix, and an estimate of an aggregate causal map can be devised using some network scaling approach. Usually this approach is employed in connection with laddering data (Reynolds & Gutman, 1988).

The alternative approach is to code the concepts from the individual maps into a smaller number of categories and use this as the basis for a new round of data collection, in which respondents have to evaluate causal relationships between these coded categories. This would also result in an implication matrix, which can be used as input to a network scaling algorithm.

Two arguments can be advanced for the second approach. One is pragmatic: If one wants to base the aggregate estimate on a broader database without conducting more qualitative interviews, ie, if one actually attempts a quantitative validation of the qualitative results, possibly extending and including the original set of respondents, then the second approach is the only one feasible. The other is of a theoretical nature. Information retrieval in an interview situation is of a stochastic nature: situational factors and interviewer influence will have an impact on which elements of cognitive structure the respondent retrieves,

and which remain untapped (Gruenewald & Lockhead, 1980; Grunert & Grunert, 1995). The result of any single interview, and also the resulting individual causal map, will therefore usually be only a subset of that individual's cognitive structure with regard to success factors. However, to the extent that these influences actually are stochastic and not a systematic interviewer influence, one would expect that, across a set of interviews, the list of potential success factors uncovered becomes quite complete and encompasses all major concepts of each individual interviewed, including those the particular individual has not named. One could then argue that this list of potential success factors is a better basis for obtaining estimates of the respondents' perception of causality between them.

It was mainly the second argument which led us to opt for a second round of data collection in this study. Also, we were interested in the suitability of methods for quantitative validation of depth interviews results applicable to a larger sample.

Development of the implication matrix

The procedure chosen for the second round of the data collection was to get respondents to express their perception of causality between potential key success factors by filling in cells of an empty implication matrix.

The first step in the development of this matrix was to reduce the number of concepts in the individual maps to a smaller, more manageable number by a coding procedure. In accordance with the procedures for coding of systematically collected data material as prescribed by Glaser and Strauss (1967), each concept of each map was considered one by one with regard to its similarity with other concepts. Concepts very similar to each other were grouped, eg, *management team committed to a common goal* was grouped with *quality in leadership*, and *constant rejuvenation* was grouped with *frequent introductions of new products*. The result of this procedure was approximately 30 homogeneous second level concepts, which still appeared rather fragmented and too differentiated. The coding procedure was therefore repeated until it was found that further coding would distort the homogeneity and the meaningfulness of the concepts that eventually had emerged.

These procedures resulted in 16 coded concepts, potential key success factors, that were given names intended to be meaningful, unambiguous, and expressing the contents of the concepts that they represent. These factors are a synthesis of the concepts stated by the respondents to be direct and indirect causes of success in the yoghurt market. We therefore assume that the key success factors of the yoghurt market are to be identified within these 16 factors, and consequently we may call them *potential key success factors*.

The potential key success factors are presented below together with some key words for each factor that further explain the meaning of each factor. The order is random.

- *High product quality*
 - good taste and texture
 - standardised day-to-day quality
 - better than other yoghurts...
- *Attractive packaging*
 - tempting
 - eye-catching
 - recognisable
 - built-in convenience
- *High quality of raw material*
 - quality of the raw milk
 - quality of other ingredients
- *Possession of advanced technology and know-how*
 - modern production, packaging, and information technology
 - up-to-date knowledge on acidifying cultures, processes, and technologies
- *Competent management and competent staff*
 - qualified, experienced, well-educated
 - creative, courageous, of genius, looking forward, visionary
 - strong corporate culture
- *Wide product range*
 - presentation of a wide and varied range of yoghurts to retailers and/or consumers: various product types and flavours
- *Extensive product development activities/great innovativeness*
 - in-company development of new products and new product lines
 - activities in R&D department/laboratory
- *Extensive marketing activities*
 - building up brand name and logo
 - promotions, in-store demos
 - advertising (TV, magazines, etc.)
- *(Abundant) financial resources*
 - liquidity
 - net capital
 - possibilities for making long term investments
- *Scale production*
 - high-volume production
- *Good logistics management*
 - delivery of right products, right place, right time
 - quick and frequent deliveries

- *Good product portfolio management*
 - continuous development of product range
 - adaptation of product range to market demand structure
 - avoidance of “cannibalism” among own products

- *Non-complex organisation*
 - flat hierarchy
 - short routes of information
 - short decision processes

- *Low retail prices*
 - aggressive price policy
 - quantity discounts – eg “3 for the price of 2”

- *Good relations with trade*
 - creation and maintenance of personal relations
 - responsiveness to retailers’ wants and demands
 - credibility as partner
 - knowledge of retailers’ organisations

- *Extensive market knowledge*
 - knowledge of consumers’ preferences, motivations, and expectations
 - knowledge of competitors’ products and activities
 - usage of market analysis

Using these 16 potential key success factors, an empty 16 x 16 implication matrix was constructed. Two columns were added for the two target variables, “perceived customer value” and “relative costs”, resulting in a 16 x 18 matrix.

The instructions that came with the matrix explained to the respondent that, on the basis of all the interviews that had been made, all mentioned direct and indirect causes of success had been organised into a number of factors, which were the ones represented in the matrix. We asked the respondents to consider the relations between all factors, and fill out the matrix in accordance with their perception of the mutual relations between the different sources of success. A detailed description of how to fill in the entries was provided and an example was given:

Example:

If you think that:

– high raw material quality <i>contributes</i> to the achievement of high product quality:	insert “ + “ (plus)
– high raw material quality <i>prevents</i> the achievement of high product quality:	insert “ - “ (minus)
– high raw material quality <i>does not influence</i> the product quality:	insert “ 0 “ (nil)

The respondents were encouraged to go through the procedure in a spontaneous way. They were not supposed to go through extensive consideration before they decided upon the causal relations between the factors in question. Rather, they were asked for their immediate perception as to how the factors were inter-related was asked for.

In case the respondents had any doubts about what was actually meant by the name or label of each particular factor, a glossary with a number of key words indicating what was to be understood by each factor was attached to the matrix. The glossary was inserted in the questionnaire in such a way that the respondents could read it while filling in the matrix.

Data collection

A questionnaire containing the implication matrix was sent to the respondents who had participated in phase I of the study. Each respondent received two questionnaires and was encouraged to give one of them to a qualified colleague in order to obtain a broader data base.

Of the 33 managers that had participated in phase I and who were re-approached in this second round of data collection, 17 returned the questionnaire. Further, four additional persons filled out the questionnaire and returned it, resulting in 21 returned questionnaires. Nine questionnaires were returned from Danish respondents, six from the UK respondents, and six from German respondents. A round of telephone calls to the companies was initiated in order to check for reasons for non-return. The most common problem mentioned was lack of time; filling out a questionnaire for the benefit of a research project had low priority in the tight schedule which most of the respondents had, whatever the size of their company. Regarding the lack of responses from "secondary" respondents, it was expressed that there was nobody else in the company that could evaluate the properties of the yoghurt market.

Data analysis

Since our theoretical point of departure is that managers' perceptions of key success factors can be modelled as a network of skills and resources leading up to relative costs and customer perceived value, the implication matrix data must be interpreted as the representation of an underlying network structure. The purpose of the data analysis is to uncover this network structure. Since we are aiming at an analysis of data at the aggregate level, we have to assume for each aggregate, ie, for each group of respondents analysed together, that respondents' responses originate from the same underlying cognitive structure, and that differences in responses are due to stochastic variation only. In this case, the frequency with which a particular cell in the implication matrix was ticked off by a group of respondents can be interpreted as a measure of the strength of the causal relation, and can be used to infer the network. Making this assumption about homogeneity across a group of respondents is common in cognitive structure research (for a discussion of the problems involved with it see, eg, Deese, 1965; Grunert & Grunert, 1995; Szalay & Deese, 1978).

Uncovering the network structure thus took its point of departure in the aggregated implication matrix, ie, in the matrix of frequencies with which respondents indicated that two matrix entries were causally connected. Two such matrices could be inferred from the data, one for the frequency of “+”-entries, and one for the frequency of “-”-entries. It turned out, however, that respondents rarely used “-” in filling out the matrix. We therefore based the analysis only on the frequency of “+” entries. We derived aggregate matrices for the whole group of respondents, and also separate matrices for the three national groups.

Analysis of the matrices was done using the NETSCAL algorithm developed by Hutchinson (1989). This algorithm uncovers a network structure from matrix data and estimates lengths of the links in the network in such a way that the network’s distance matrix, ie, a matrix, which for each pair of nodes gives the length of the shortest path between them, computed as the sum of the lengths of all links in the path, is in maximum congruence with the original input matrix. A basic assumption in constructing the network is that, if there is a link X-Y with length D_{XY} , and there is a link Y-Z with length D_{YZ} , then a link X-Z can exist only if $D_{XZ} \leq \min\{\max(D_{XY}, D_{YZ})\}$ for all Y (for a more detailed description of the underlying graph theory terminology, see, eg, Harary, Norman & Cartwright, 1965).

Results

Figures 7 to 11 illustrate the results of the network scaling process. Figure 7 shows all the paths which are related to achieving *high perceived value*. Thick arrows correspond to short link lengths and consequently to a larger number of respondents mentioning this link. There are several noteworthy things in this diagram. Firstly, there are three direct determinants of *high perceived value*: *attractive packaging*, *high product quality*, and *extensive marketing activities*. Secondly, *high product quality* is in turn determined by *high raw material quality*, *possession of advanced technology and know-how*, and *competent management and staff*, indicating an emphasis on an objective concept of quality. Actually, the triangle *high product quality* – *possession of advanced technology and know-how* – *competent management and staff* seems to be the core of this diagram, indicating a strong emphasis on technological skills and objective product quality. Thirdly, *competent management and staff* has a very central role in the causal diagram, determining practically everything else. Fourthly, one should note the role of *good relations with trade*: several paths go into it, but only one weak path leaves it, indicating that good relations with trade are an aim in itself rather than a factor facilitating high perceived consumer value. In this context it is also noteworthy that *extensive market knowledge* is regarded as much more important for achieving good relations with trade than for achieving high perceived value in the eyes for the consumer. Figure 8 is based on the same data, but concentrates on the strongest relationships by including only the paths mentioned by a majority of the respondents (frequency > 16).

Figures 7-11. Results from network scaling

Figure 7.

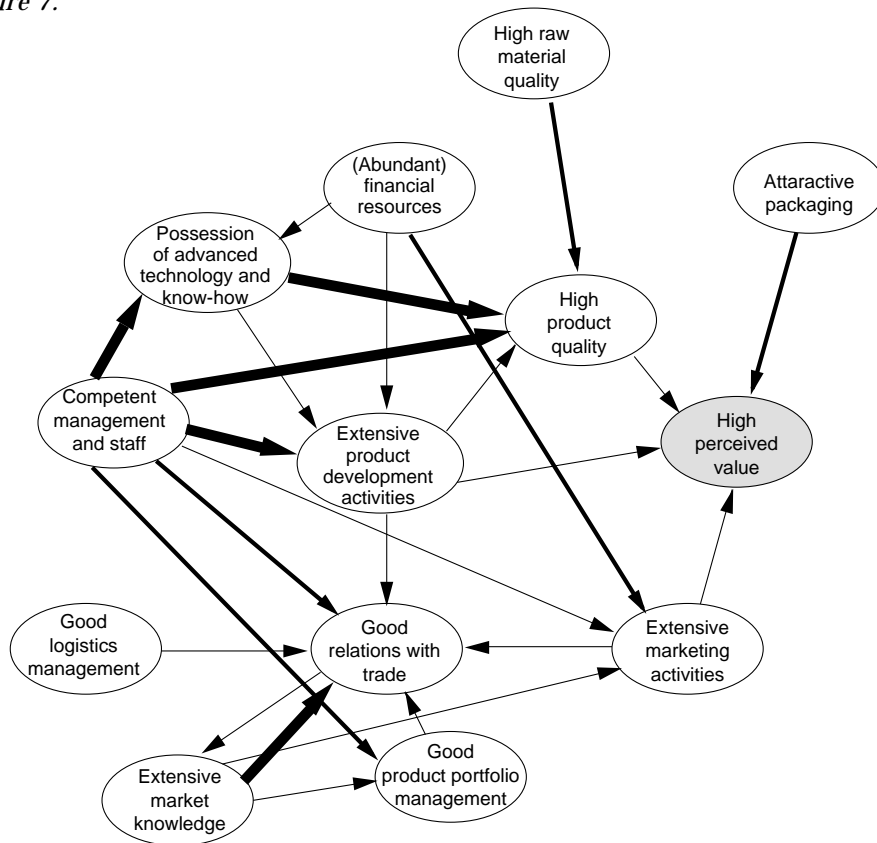


Figure 8.

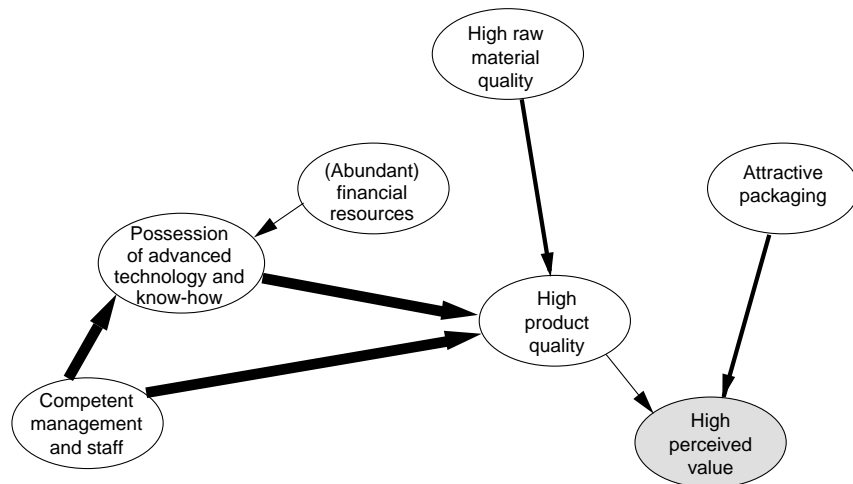


Figure 9.

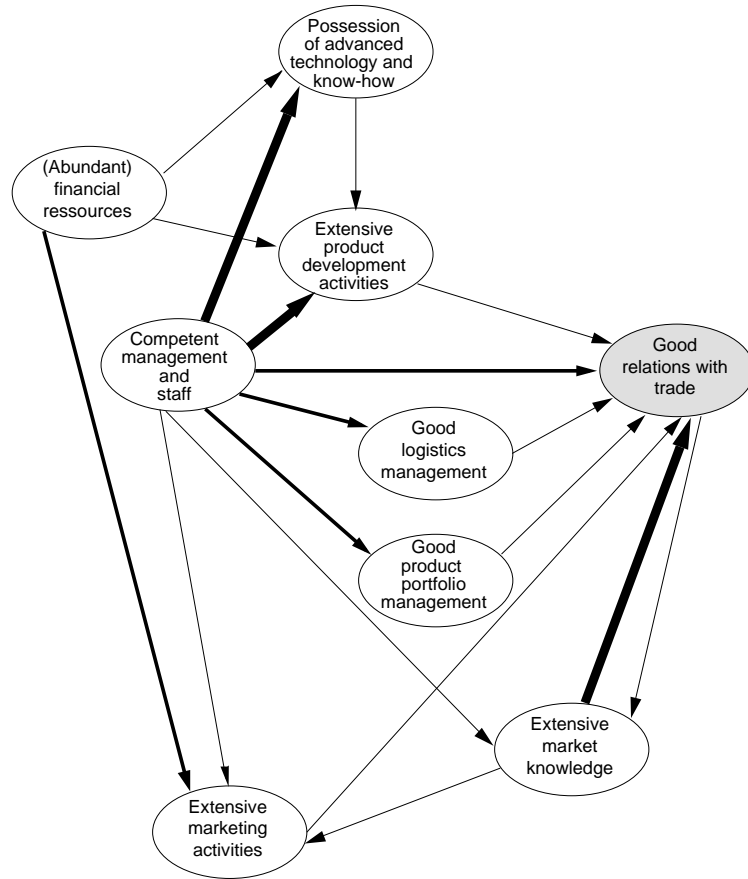


Figure 10.

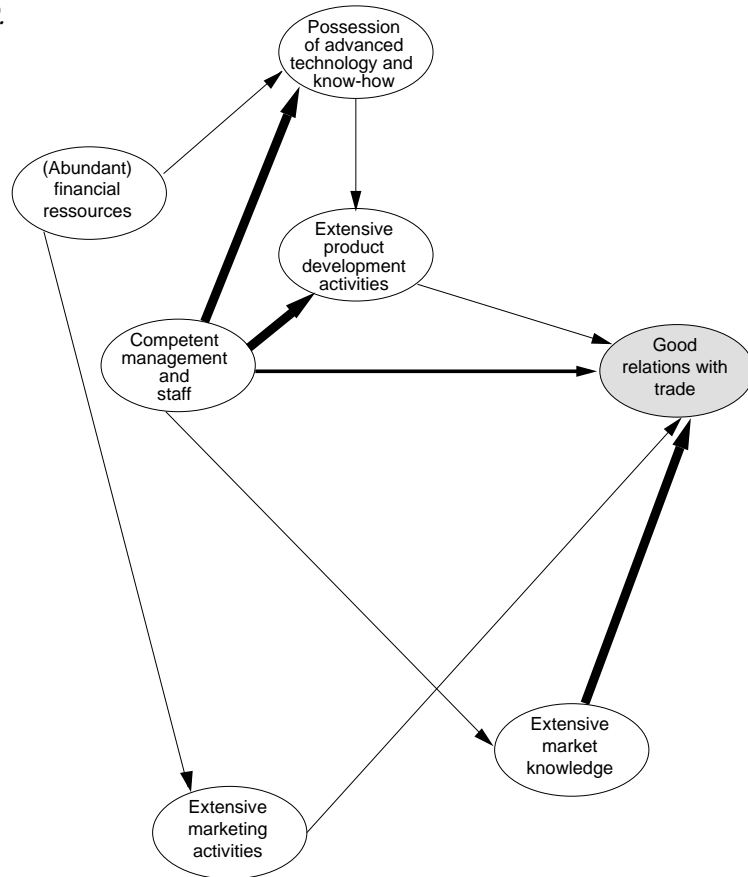
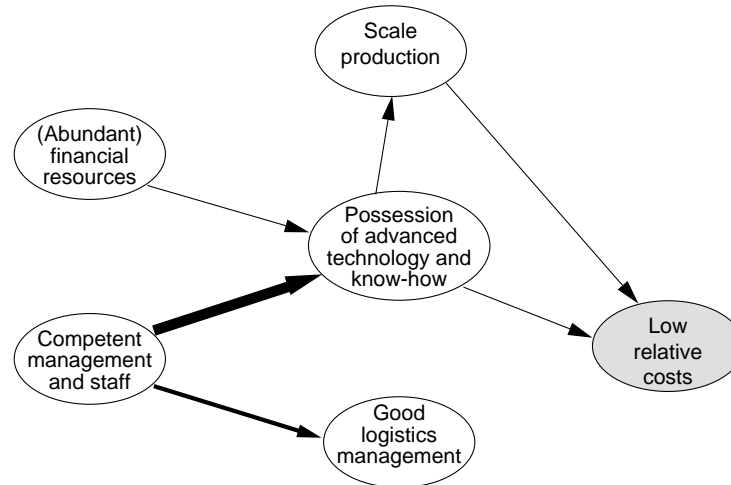


Figure 11.



Since *good relations with trade* seem to be an aim in itself, we have also looked at paths leading to this end. This is shown in figures 9 and 10. *Extensive market knowledge* is the main determinant, supplemented by *extensive product development activities*, *good logistics management*, and *extensive marketing activities*. Again, *competent management and staff* is a major second-order determinant.

Finally, as shown in figure 11, *scale production*, *possession of advanced technology and know-how*, and *good logistics management* are regarded as the main direct determinants of *low relative costs*, with *competent management and staff* and *financial resources* as second-order determinants.

Closer inspection of the data also revealed some national differences. Danish respondents emphasised simple organisational structure as a success factor, this was hardly mentioned by respondents in the other two countries. In the United Kingdom, logistics was mentioned especially frequently. The importance of scale production and technological know-how was emphasised in Denmark and Germany.

We have now pinpointed decision-makers' perception of the causes of success on the yoghurt market at an aggregate level. We have three sets of interrelated skills and resources of the company, determining consumer perceived value, good relations with trade, and low relative costs respectively. In the next phase, we try to confront these perceptions with a more objective method of deriving the key success factors in a market.

PHASE III: COMPANY EVALUATION AND VALIDATION OF PERCEPTIONS

Approaches to the validation of perceived key success factors

A key success factor was defined as a skill or resource that a business can invest in, which, on the market the business is operating on, explains a major part of the observable differences in perceived value and/or relative costs. When trying

to compare managers' perceived key success factors with "actual" key success factors, the pertinent approach would be to get objective measurements of the extent to which companies or business units possess the various skills and resources discussed in the preceding two sections, supplement this by objective measurements of customer perceived value and relative costs, and carry out the appropriate statistical procedures to find out which variables explain how much variance.

The problem is, of course, in the "objective measurements". With the possible exception of relative costs, all the variables involved must be classified as latent constructs, something which is not immediately observable, but which must be inferred on the basis of indicators. The problem is not so much that there are several potential indicators for perceived value, or relative costs, or possible causes; the problem is that often it will be difficult to obtain "objective" measurements. Three levels of "objectivity" may be distinguished (measurement of relative costs is used as an example):

- Relative costs could, in principle, be derived from the documented costs of the business operations relative to the documented costs of the main competitors. This would have a high degree of objectivity in the sense that the result would only to a small degree depend on how the variable in question is perceived by an observer. However, such data are usually very difficult, if not impossible, to get.
- "Self-reported objective measures" (Dess & Robinson, 1984) imply that a business executive is relied to give relative costs figures, eg, as a percentage which expresses the cost (dis-)advantage with regard to the three main competitors. This has a lower degree of objectivity, in that the original data are not inspected by the researcher, who trusts the validity of the figures given by the executive (who may have estimated the figure without data base).
- Finally, subjective ratings of the variable can be used. The business executive would rate his/her business on a scale with poles, eg, "very high cost advantage" to "very high cost disadvantage". This kind of measurement is regarded as having the lowest degree of objectivity of the three types of measures.

The second and third possibilities are widely used, eg, in the PIMS data base. Such measures open up many possibilities for measurement error (Grunert, 1990; Phillips, 1981; Venkatraman & Grant, 1986). However, Parasuraman and Varadarajan (1988) have shown that PIMS data are astonishingly robust, and Dess and Robinson (1984) have documented reasonably high correlation between self-reported objective measures and subjective ratings.

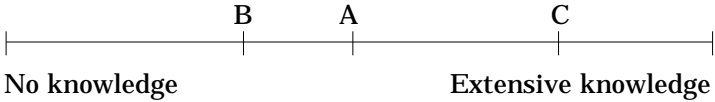
Given the nature of the variables to be measured in the present study, it is quite clear that for most of them only the third possibility is a realistic option, unless one wants to create an elaborate set of multiple indicators for each single variable. Here, the validation of the perceived success factors is therefore based on subjective ratings of the variables in question.

Development of the company evaluation questionnaire

A questionnaire was developed in which respondents had to evaluate their company and two major competitors with regard to the 16 potential key success factors and the target variables "perceived customer value" and "relative costs". In the interest of reliability and to avoid using concepts at too high a level of abstraction, most of the 16 factors were covered by more than one item. These items were found on the basis of the material used for the coding reported in phase II of the study.

The rating was done on magnitude scales (Grunert, 1983), where respondents had to indicate the position of both their own company and their competitors with regard to the factor in question by making tick marks on a line. This encourages respondents to give relative judgements and increases the amount of variation in the answers given as compared to Likert-type rating scales.

The procedure was explained by an example:

Example:	A: Your own company B: Competitor 1 C: Competitor 2
Question:	How do you judge your own and your competitors' knowledge on consumer preferences and habits as to yoghurt?
Answer:	
	If for example you think that you and/or your competitors perform "equally well", you insert just one mark with two or more letters against it.

It was emphasised that the respondent was not expected to possess full knowledge of all conditions neither in their own company nor in their competitors' companies, but that they were expected to answer to the best of their knowledge.

As for the selection of competitors, the respondents were asked to select two companies that they usually compare themselves with as to the sales of yoghurt products on their respective national markets.

Data collection

The company evaluation questionnaire was sent out together with the implication matrix questionnaire and was answered by the same respondents. As noted in the description of data collection for phase II, 21 questionnaires were returned. Of the 21 questionnaires, one was not suitable for analysis. The remaining 20 questionnaires contained evaluations of 60 yoghurt companies (own companies and competitors).

Data analysis

All analysis are based on the evaluated company as the unit of analysis, ie, on a dataset comprising 60 cases.

For those factors measured by more than one item, Cronbach's alpha was computed as a reliability check. The results can be seen in figure 12. Most factors turned out to have reliabilities between .60 and .92. Three factors had reliabilities lower than .60. These were:

- *High quality of raw material* ($\alpha = .44$), consisting of the items *High quality of raw milk* and *High quality of other ingredients*. Both items were used as single-item measures in the subsequent analysis.
- *Good relations with trade* ($\alpha = .32$), consisting of the items *Good at listening to the retailers*, and *Good personal relations with the retailers*. Only the second item was used in the analysis.
- *High perceived customer value* ($\alpha = .34$), consisting of the items *High perceived customer value – without considering the price*, and *High perceived customer value – in relation to the price*. Only the first item was used in the analysis.

Figure 12. Scales in company evaluation questionnaire

Factor	Items	Alpha	Variable name in LISREL analysis
Product quality	s1	-	quality
Packaging	s2, s3	.60	pack
Raw material quality	s4, s5	.44	raw1, raw2
Technology and know-how	s6, s7, s8	.66	tech
Management and staff	s9, s10, s11	.80	mansta
Product range	s12, s13	.74	-
Product development activities	s16, s17	.72	markact
Financial resources	s18	-	finres
Scale production	s19	-	scale
Logitics management	s20	-	log
Product portfolio management	s21	-	-
Organisation	s22, s23	.92	-
Retail prices	s24	-	-
Trade relations	s25, s26	.32	trade
Market knowledge	s27, s28	.63	markkno
Relative costs	s29	-	costs
Perceived value	s30, s31	.34	value

It was then attempted to test structural equation models on these data which mirror the relationships resulting from the network scaling analysis described in the preceding main section. In so doing, a number of things must be noticed. First, a normality test showed most of the items to have a skewed distribution, so that all items underwent a power transformation for better approximation of normality. Secondly, the small sample size created a number of constraints. It is evident that only extremely strong relationships can be expected to turn out as statistically significant, which in this case means that it may be worthwhile also to look at some of the less significant relationships. Also, it is impossible to test the more complicated networks in figures 7 and 9, so only the networks corresponding to figures 8, 10 and 11 served as point of departure for the construction of structural equation models. Finally, it should be noted that the fact that some of the latent variables are measured by one item only makes it necessary to specify the error variance of these items in advance; these error variances were fixed at levels corresponding to those found for the items of those latent variables where error variances could be estimated. The analysis was done by using LISREL 8.

Results

Figure 13 shows the results of testing the relationships leading to *high perceived value*. The determinant *attractive packaging* turned out to be insignificant, contradicting the perception of the decision-makers as expressed in the implication matrices. *High product quality*, however, is significant, as is the link from *Competent management and staff* to *Possession of advanced technology and know-how*, and the links further on to *High product quality*, as well as from *High raw material quality* to *High product quality*, have weak significance. By and large, the results therefore confirm the perceptions of success factors which were expressed in the implication matrices, with two interesting modifications: packaging has no effect, and of the two raw material variables, it is not the milk quality variable, which has an effect, but the variable *Quality of other ingredients*.

Figure 14 shows a model of the relationships between various skills and resources and *Good relations with trade*. It is modelled on the basis of the network in figure 10. However, a few modifications were necessary before it was possible to come up with meaningful estimates. The variable *Possession of advanced technology and know-how* was completely taken out, since its inclusion lead to nonsensical results. Also, the direct link between *Competent management and staff* and *Good relations with trade*, included in figure 10, is omitted in favour of the two indirect links via *Extensive product development activities* and *Extensive market knowledge*. With these modifications, the model confirms the relationship from *Extensive product development activities* to *Good relations with trade*, and, somewhat more weak, the effect of *Extensive marketing activities*. Likewise, the effect of *Competent management and staff* and of *Financial resources* as second-order determinants are confirmed, the latter again weaker. The major deviation from figure 10 is the significant, but negative effect of *Extensive market knowledge* on *Good relations with trade*. A possible interpretation for this somewhat surprising result could be that this result is spuriously caused by a major strategy variable, influencing both market knowledge and relationship with trade: the option of being a brand manufacturer or a private label supplier. The latter usually leads to better relationships with trade and obliterates – to some degree – the necessity to obtain good market knowledge by

conducting, eg, extensive consumer research. The former forces the manufacturer to obtain a good degree of market knowledge, but will not usually lead to the same intimacy in producer-retailer relationships. Unfortunately, the data do not allow a testing of this hypothesis.

Figures 13-15. Structural equation models
Standardized coefficients (**p<.05, *p<.1)

Figure 13.

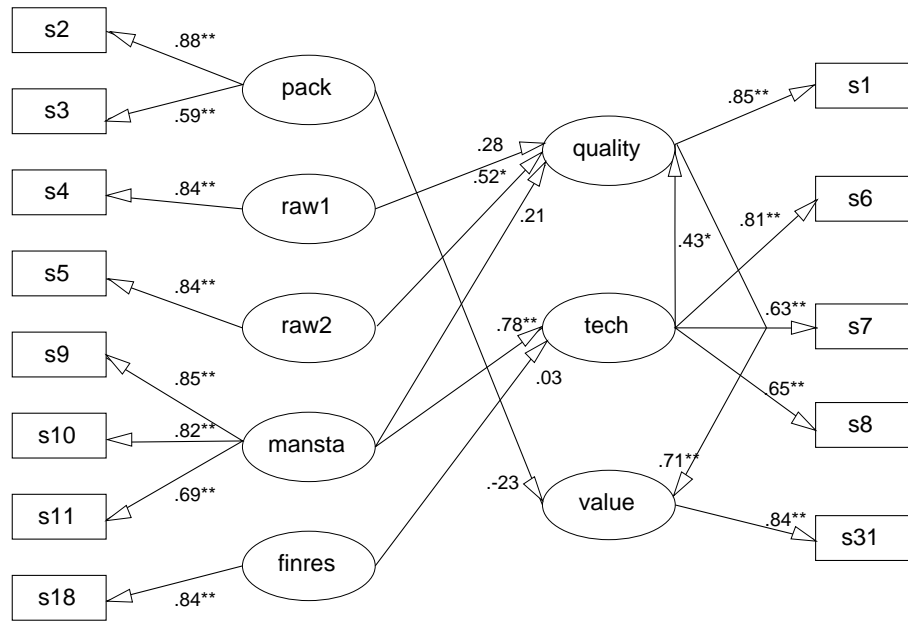


Figure 14.

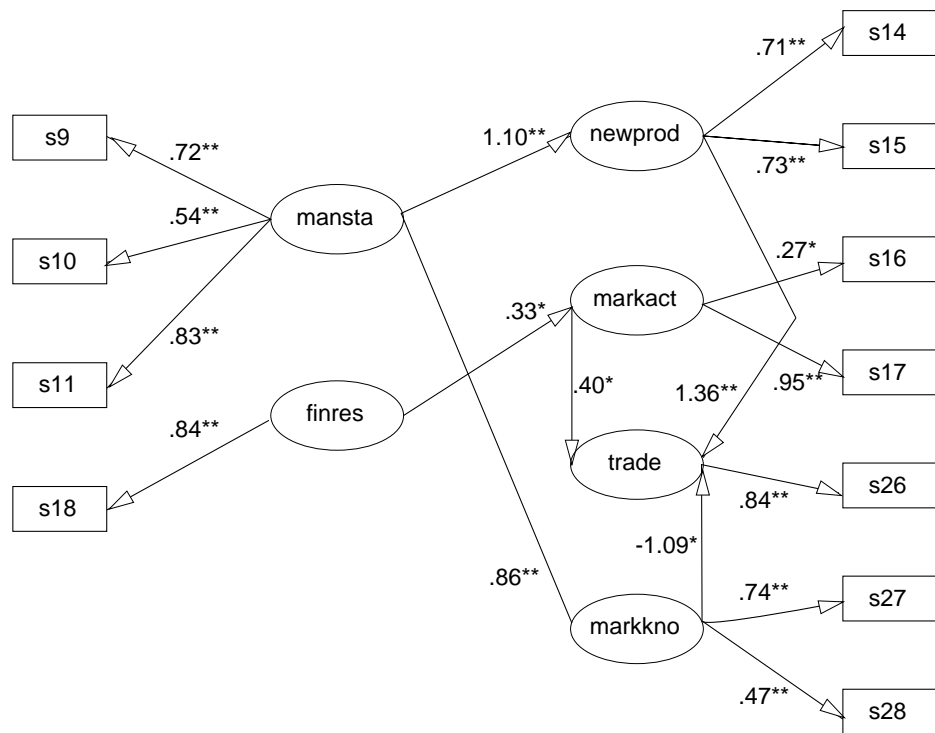


Figure 15.

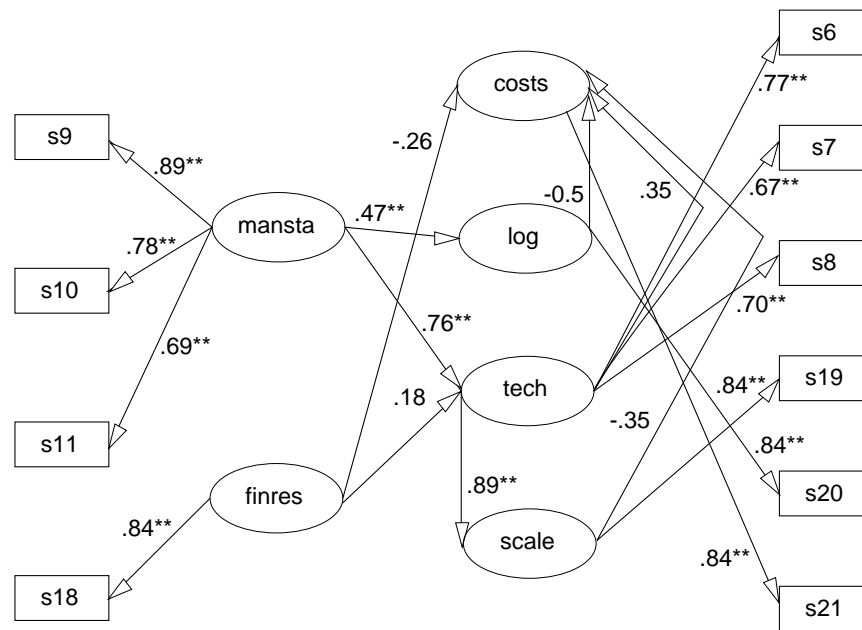


Figure 15 shows the results of testing a structural model patterned after figure 11, showing determinants of low relative costs. While some of the second-order relationships are confirmed, none of the links to the relative cost variable approach statistical significance. Thus, these results do not confirm decision-makers' perception of the determinants of low relative costs which were expressed in the implication matrices.

CONCLUSIONS AND IMPLICATIONS

In this study, we have, in a two-step process, ascertained how decision-makers in the European yoghurt industry perceive skills and resources which are decisive for attaining high perceived customer value and low relative costs, ie, we have attempted to measure their perceived key success factors. We have then compared the results with results obtained from a measurement procedure with a higher degree of objectivity, aiming to uncover "actual" success factors, in order to disclose whether decision-makers' perception seems to be mostly congruent or mostly deviant with the results from a more objective statistical analysis.

The results of the study have implications for four areas: 1) for conducting research on perceived key success factors, 2) for conducting research on "actual" success factors, 3) for the relationship between perceived and "actual" success factors, and 4) for the use of the key success factor concept in competitor analysis.

As for researching perceived key success factors, our study confirms the experience made in other research on organisational and managerial cognition, namely that it is no problem for decision-makers to relate their perceptions about causal relations in depth interviews. In addition, we have shown that a reverse laddering procedure is well-suited to uncover managers' perceptions of causes of success. The results, however, vary widely in the amount and detail produced, and it is not always possible to attribute this to differences in

cognitive structure as opposed to differences in situational circumstances like time pressure. Also, the combination of depth interviews and individual causal maps is both time- and resource-consuming. Part 2 of our study has shown that the use of ratings in an implication matrix may be a very useful and quite efficient device to measure perceived causal structures in strategy research. Such a matrix design could be based on a small number of qualitative interviews, as our research also showed that a relatively small number of interviews would have been sufficient to generate the 16 concepts which went into the implication matrix.

Researching "actual" success factors is an area with considerable potential for methodological improvement, especially when it is attempted to make such measurements on an intra-industry basis. In PIMS-type, cross-industry studies, the possibility of using large samples makes it easier to construct reliable measurement devices. For intra-industry studies, however, the small sample size in the present study is probably more typical, which calls for new innovative measurement devices which combine the advantages of multiple measurement with the constraints of small numbers.

In substantive terms, the general impression from the results is that decision-makers do not seem to be too far off with regard to their perception of the determinants of perceived value and good trade relationships, with a few notable exceptions, like the role of packaging. This does not apply, however, for the determinants of relative costs. We can only speculate about the reasons for this. One hypothesis, consistent with business folklore, is that marketing managers, which were the majority of the respondents, are more concerned with creating customer value than with the costs incurred, and therefore have more correct perceptions about the former as compared to the latter. Another hypothesis, not competing with the first, is that the determinants of costs named by the respondents do no longer discriminate between the competing companies, ie, they have become a basic or core skill, but are no longer key success factors explaining a major part of the variance in relative costs.

Yet another practical application of the analysis of key success factors is the use in competitor analysis (Grunert, 1995). Once one has a notion about the key success factors in an industry, this can be a powerful device for directing the competitor intelligence towards these factors. Our study indicates that even small scale studies of perceived key success factors can yield lists of factors which may have validity, possibly obliterating the necessity to conduct large scale studies on "actual" key success factors.

REFERENCES

- Anderson, J. R. (1983). *The architecture of cognition*. Cambridge, MA: Harvard University Press.
- Armstrong, T. & Eden, C. (1979). An exploration of occupational role: An exercise in team development. *Personnel Review*, 20-23.
- Barnes, J. H., Jr. (1984). Cognitive biases and their impact on strategic planning. *Strategic Management Journal*, 5, 129-137.
- Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of Management*, 17, 99-120.
- Boland, R. J., Greenberg, R. H., Park, S. H. & Han, I. (1990). Mapping the process of problem reformulation: Implications for understanding strategic thought. In A. S. Huff (Ed.), *Mapping strategic thought*, pp. 195-226. Chichester: Wiley.
- Bougon, M., Weick, K. & Binkhorst, D. (1977). Cognition in organizations: An analysis of the Utrecht Jazz Orchestra. *Administrative Science Quarterly*, 22, 606-639.
- Boynton, A. C. & Zmud, R. W. (1984). An assessment of critical success factors. *Sloan Management Review*, 25(3), 17-27.
- Bullen, C. V. & Rockart, J. F. (1981). *A primer on critical success factors*. Cambridge, MA: Center for Information Systems Research, MIT.
- Cossette, P. & Audet, M. (1992). Mapping of an idiosyncratic schema. *Journal of Management Studies*, 29, 325-347.
- Day, G. S. (1981). Strategic market analysis and definition: An integrated approach. *Strategic Management Journal*, 2, 281-299.
- Day, G. S. (1984). *Strategic market planning*. St. Paul: West.
- Day, G. S. & Wensley, R. (1988). Assessing advantage: A framework for diagnosing competitive superiority. *Journal of Marketing*, 52(2), 1-20.
- Deese, J. (1965). *The structure of associations in language and thought*. Baltimore: Johns Hopkins.
- Dess, G. G. & Robinson, R. B. (1984). Measuring organizational performance in the absence of objective measures. *Strategic Management Journal*, 5, 265-273.
- EIU (1992). *Yoghurt and related products in Germany* (Report No. 350). The Economist Intelligence Unit.
- Ferguson, C. R. & Dickinson, R. (1982). Critical success factors for directors in the eighties. *Business Horizons* (3), 14-20.
- Fiol, C. M. & Huff, A. S. (1992). Maps for managers: Where are we? Where do we go from here? *Journal of Management Studies*, 29, 267-285.
- Fitzpatrick, J. (1990). *Europe's dairy industry* (Special Report No. 2037). The Economist Intelligence Unit.
- Glaser, B. G. & Strauss, A. L. (1967). *The discovery of grounded theory*. Chicago: Aldine.
- Gruenewald, P. J. & Lockhead, G. R. (1980). The free recall of category examples. *Journal of Experimental Psychology: Human Learning and Memory*, 6(3), 225-240.
- Grunert, K. G. (1983). Magnitude-Skalierung. *Marketing - ZFP*, 5, 108-112.

- Grunert, K. G. (1994). Cognition and economic psychology. In H. Brandstätter & W. Güth (Eds.), *Essays in economic psychology*, pp. 91-108. Berlin: Springer.
- Grunert, K. G. (1995). Konkurrentenanalyse. In R. Köhler, B. Tietz & J. Zentes (Eds.), *Handwörterbuch des Marketing*, pp. 1226-1234. Stuttgart: Poeschel.
- Grunert, K. G. (1990a). *Kognitive Strukturen in der Konsumforschung*. Heidelberg: Physica.
- Grunert, K. G. (1990b). Methodological problems in competitor analysis. In P. Webley, B. Young & S. E. G. Lea (Eds.), *Proceedings of the Annual IAREP Colloquium*. Exeter: University of Exeter.
- Grunert, K. G. & Ellegaard, C. (1993). The concept of key success factors: Theory and method. In M. J. Baker (Ed.), *Perspectives on marketing management, vol. 3*, pp. 245-274. Chichester: Wiley.
- Grunert, K. G. & Grunert, S. C. (1995). Measuring subjective meaning structures by the laddering method: Theoretical considerations and methodological problems. *International Journal of Research in Marketing*, 12, 209-225.
- Grunert, K. G., Grunert, S. C. & Sørensen, E. (in press). Means-end chains and laddering: An inventory of problems and an agenda for research. In J. C. Olson & T. J. Reynolds (Eds.), *Understanding consumer decision-making*. Hillsdale, NY: Erlbaum.
- Grunert, K. G., Hartvig Larsen, H., Madsen, T. K. & Baadsgaard, A. (1995). *Market orientation in food and agriculture*. Boston: Kluwer Academic.
- Gutman, J. (1982). A means-end chain model based on consumer categorization processes. *Journal of Marketing*, 46(2), 60-72.
- Gutman, J. (1991). Exploring the nature of linkages between consequences and values. *Journal of Business Research*, 22(2), 143-149.
- Harary, F., Norman, R. Z. & Cartwright, D. (1965). *Structural models: An introduction to the theory of directed graphs*. New York: Wiley.
- Hildebrandt, L. (1992). Wettbewerbssituation und Unternehmenserfolg. *Zeitschrift für Betriebswirtschaft*, 62, 1069-1084.
- Huff, A. S. (1990). Mapping strategic thought. In A. S. Huff (Eds.), *Mapping strategic thought*, pp. 11-50. Chichester: Wiley.
- Hutchinson, J. W. (1989). NETSCAL: A network scaling algorithm for nonsymmetric proximity data. *Psychometrika*, 54(1), 25-51.
- Leidecker, J. K. & Bruno, A. V. (1984). Identifying and using critical success factors. *Long Range Planning*, 17(1), 23-32.
- Lines, R. & Grønhaug, K. (1993). *Environmental orientation of managers: the construct, its antecedents and consequences*. Paper presented at the Workshop on Managerial and Organizational Cognition, Brussels, European Institute for Advanced Studies in Management.
- Narayanan, V. K. & Fahey, L. (1990). Evolution of revealed causal maps during decline: A case study of admiral. In A. S. Huff (Ed.), *Mapping strategic thought*, pp. 109-134. Chichester: Wiley.
- Norman, D. A. & Rumelhart, D. E. (1975). *Explorations in cognition*. San Francisco: Freeman.
- Ohmae, K. (1982). *The mind of the strategist*. New York: McGraw-Hill.

- Parasuraman, A. & Varadarajan, P. R. (1988). Robustness of ordinal measures of competitive strategy variables employed in business research. *Journal of Business Research*, 17, 101-114.
- Petersen, B. (1991). *Toward a uniform taxonomy of success factors*. Copenhagen: Unpublished manuscript, Copenhagen Business School.
- Phillips, L. W. (1981). Assessing measurement error in key informant reports: A methodological note on organizational analysis in marketing. *Journal of Marketing Research*, 18, 395-415.
- Porter, M. (1980). *Competitive strategy*. New York: Free Press.
- Reger, R. K. (1990). Managerial thought structures and competitive positioning. In A. S. Huff (Eds.), *Mapping strategic thought*, pp. 71-88. Chichester: Wiley.
- Reynolds, T. J. & Gutman, J. (1988). Laddering theory, methods, analysis, and interpretation. *Journal of Advertising Research*, 29(2), 11-31.
- Rumelhart, D. E. & Ortoni, A. (1977). The representation of knowledge in memory. In R. C. Anderson, R. J. Spiro & W. E. Montague (Eds.), *Schooling and the acquisition of knowledge*, pp. 99-135. Hillsdale, NJ: Lawrence Erlbaum.
- Schocker, A. D., Stewart, D. W. & Zahorik, A. J. (1990). Market structure analysis: Practice, problems and promise. In G. S. Day, B. Weitz & R. Wensley (Eds.), *The interface of marketing and strategy*. Greenwich, CO: JAI Press.
- Schwenk, C. R. (1988). The cognitive perspective on strategic decision making. *Journal of Management Studies*, 25, 41-55.
- Sousa de Vasconcellos e Sá, J. A. & Hambrick, D. C. (1989). Key success factors: Test of a general theory in the mature industrial product sector. *Strategic Management Journal*, 10, 367-382.
- Szalay, L. B. & Deese, J. (1978). *Subjective meaning and culture: An assessment through word associations*. Hillsdale, NJ: Erlbaum.
- Venkatraman, N. & Grant, J. H. (1986). Construct measurement in organizational strategy research: A critique and proposal. *Academy of Management Review*, 11(1), 71-87.