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**The Concept of Key Success Factors:
Theory and Method**

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Executive Summary

1. The term key success factors can be used in four different ways: a) as a necessary ingredient in a management information system, b) as a unique characteristic of a company, c) as a heuristic tool for managers to sharpen their thinking, d) as a description of the major skills and resources required to be successful in a given market. We adopt the last view.
2. The actual key success factors on a market, and those key success factors perceived by decision-makers in companies operating in the market, will be different. A number of psychological mechanisms result in misperceptions of the causes of success on a market. Both the actual key success factors on a market, and the way they are perceived by decision-makers, are amenable to scientific analysis. Such an analysis can improve performance of decision-makers on that market.
3. The major immediate causes of success on any market are the value perceived by customers in a business's products, and the costs (relative to competitors) incurred in producing this value. How good a business is in creating customer value at low costs will depend on skills and resources of the company. We therefore 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.
4. Key success factors differ from core skills and resources, which are prerequisites for being on a market, but do not explain differences in value created and costs incurred. They also differ from slack skills and resources, which neither explain differences in value created and costs incurred, nor do they form prerequisites for being on a market.
5. Key success factors differ in their changeability, i.e., in the degree to which competitors can emulate them. They also differ in whether they are conjunctive or compensatory. Conjunctive key success factors are necessary conditions for superior performance. Compensatory key success factors open up for choices of areas of excellence and hence for the formation of strategic groups.
6. Perceived key success factors can be measured by semi-structured interviews with business decision-makers which follow a laddering procedure. Actual key success factors can be measured by collecting objective or semi-objective company data and relating them statistically to measures of relative costs and perceived value.

Table of contents

1. Reinventing the science of business administration?	1
2. Four views on key success factors	2
Key success factors in management information systems	2
Key success factors in strategy research	5
3. Key success factors and competitive advantage: An extended view	7
Meta-theoretical assumptions.....	8
Frame of reference	10
Key success factors and auxiliary skills and resources	15
Definition and research agenda	17
4. Key success factors and market characteristics	19
5. Methods for measuring key success factors	22
Finding the actors' hypotheses	22
Establishing causal relationships.....	24
6. References	26

The Concept of Key Success Factors: Theory and Method

The use of the key success factor concept in the MIS and strategy literature is traced, and a new view is presented, which defines key success factors as skills and resources with high leverage on customer perceived value and relative costs of a business. Key success factors are distinguished from core, slack, and auxiliary skills and resources. Perceived are distinguished from actual key success factors, and it is argued that empirical research on key success factors should address both. A research agenda is presented, and various methods for solving the methodological problems in that agenda are discussed.

1. Reinventing the science of business administration?

In a general sense, almost all scientific research in business administration is concerned with understanding what makes some businesses more successful than others. In marketing, organization, finance, accounting - all the academic counterparts of the classical functional areas of business administration are concerned with understanding how that particular part of business functions, and how this functioning is related to business success. It may, hence, appear strange that a concept like *success factors* could be launched as something new and original, something which merits special research attention.

The very fact that business research has departmentalized into the various functional areas may be one reason. Business practitioners have always emphasized the need for *general management* as a topic for both research and education, a topic which could integrate the various functional areas in such a way that a basis for the broader policy decisions is formed. Academia has responded to this demand by establishing courses and research in *business policy* and later *strategy formation*. This stream of research now forms the background for concepts like *key success factors*, which is not supposed to replace a more detailed evaluation of function-specific contributions to success, but rather to direct attention to some of the broader issues around the determinants of business success.

Part of that stream of research has been influenced by research in economics, which always had retained the general view of the firm, and where, in *industrial economics*, determinants of performance has been a research tradition for several decades. However, *market characteristics*, which are not actionable from the viewpoint of the firm, received more emphasis there than organizational characteristics, which are actionable, and hence of greater interest from the viewpoint of business administration. Indeed, the fact that business performance is based on *perceptions and decisions* of business executives is usually neglected in economics.

A theory and/or method contributing to an understanding of the key success factors in an industry would without doubt be of considerable academic and practical interest. The key success factor concept has, however, been used in a rather diverse way in the literature, as will be shown shortly. It is the purpose of this paper to sort out the uses of the concept to date, and, on the basis of this, to propose a new view of key success factors. This view will then be related to existing theories and methods, leading to an agenda for empirical research.

2. Four views on key success factors

We believe that four views on key success factors can be distinguished in the literature. Historically, the concept originated in the field of *management information systems*. It was later transferred to the field of business strategy research. There it is used in different ways, corresponding to the different schools of thought that can be found in that area (Grunert, in press; Jemison, 1981; Mintzberg, 1990a). Mainly, one can distinguish between key success factors as a *business characteristic*, as a *planning tool*, and as a *market description*. Each view will be briefly described and evaluated.

Key success factors in management information systems

The idea that there are a few factors which are decisive for the success of the company, and that these factors can be ascertained, was first introduced by Daniel (1961) and later mainly elaborated by Rockart (1979; Bullen & Rockart, 1981) in the context of designing management information systems. Finding that top management rarely used management information systems, they argued that such systems must be structured according to the information needs of the managers. In order to ascertain managers' information needs and link them to the management information system, they coined the term *critical success factor*.

Critical success factors are, according to Bullen and Rockart, "the limited number of areas in which satisfactory results will ensure successful competitive performance for the individual, department or organization. Critical success factors are the few key areas where 'things must go right' for the business to flourish and for the manager's goals to be attained." (Bullen & Rockart, 1981, p. 7).

Rockart's concept of critical success factors is clearly inspired by the issue of optimum match between environmental conditions and business characteristics, i.e., the core of business strategy. The surrounding environment is assumed to possess certain fundamental requirements and limitations, threats and opportunities, to which businesses must align their strategy, skills and resources, in order to achieve success. No organization, according to Rockart, can afford to develop a strategy which fails to provide adequate attention to the principal factors which underlie success in the industry. This provides the rationale for making them the basis of a management information system.

Rockart distinguishes between five sources of critical success factors:

- **The industry**, e.g., demand characteristics, technology employed, product characteristics etc. These can also affect all competitors within an industry, but their influence will vary according to the characteristics and sensitivity of individual industry segments.
- **Competitive strategy and industry position** of the business in question, which is determined by the history and competitive positioning in the industry.

- **Environmental factors** are the macroeconomic influences that affect all competitors within an industry, and over which the competitors have little or no influence, e.g., demographics, economic and government legislative policies etc.
- **Temporal factors**, which are areas within a business causing a time-limited distress to the implementation of a chosen strategy, e.g., lack of managerial expertise or skilled workers.
- **Managerial position**, i.e., the various functional managerial positions in a business have each their generic set of associated critical success factors.

Critical success factors can thus be characterized by the extent to which they are internal or external to the business, or that part of it over which the manager has control, and, consequently, whether they refer to something which should be monitored or built. Maintenance of technological leadership would be a source of critical success factors which the business can build, while changing consumer demographics would be a force that can be monitored, but not controlled (for more details on critical success factors in management information systems, see Boynton & Zmud, 1984; Ferguson & Dickinson, 1982; Munro & Wheeler, 1980).

Rockart has proposed a two-step interview method for ascertaining critical success factors. First there is a round of open interviews, where managers are asked about their views on the critical success factors relevant for the business. On the basis of these, a preliminary list of factors is compiled, which then, in a second round, are rated on an importance dimension (e.g., Boynton & Zmud, 1984; Rockart, 1979).

Figure 1: Example for results from a critical success factor study (from Rockart, 1979)

Chief executive of a major oil company	President of a store furnishings manufacturer	Director of a government hospital	Division chief executive of an electronics company
<ol style="list-style-type: none"> 1. Decentralize organization. 2. Improve liquidity position. 3. Improve government/business relationships. 4. Create better societal image. 5. Develop new ventures. 	<ol style="list-style-type: none"> 1. Expand foreign sales for product lines B and C. 2. Improve market understanding of product line A. 3. Redesign sales compensation structure in three product lines. 4. Improve production scheduling. 5. Mechanize production facilities. 6. Strengthen management team. 	<ol style="list-style-type: none"> 1. Devise method for obtaining valid data on current status of hospital operations. 2. Devise method for resource allocation. 3. Manage external relationship. 4. Get acceptance of concept of regionalization by all hospital directors. 5. Strengthen management support, capability, and capacity. 7. Improve relationship with government department central office. 8. Meet budgetary constraints. 	<ol style="list-style-type: none"> 1. Support field sales force. 2. Strengthen customer relations. 3. Improve productivity. 4. Obtain government R&D support. 5. Develop new products. 6. Acquire new technological capability. 7. Improve facilities.

Figure 1 shows an example of results from such an investigation (from Rockart, 1979). The example shows several things. First, the factors identified are formulated at the level of individual managers, because this is where critical success factors are conceptualized and assessed. From there, key success factors at the levels of department or business can be inferred, based on those which are consistently mentioned across respondents and departments (Boynton & Zmud, 1984). The formulation of such factors at the market level, however, has not been addressed, and it is not clear how they can be related to the task environment of the market. Also, the factors are not explicitly linked to a success measure, but seem implicitly to be taken as preconditions for business success in some sense.

In evaluating the contribution of Rockart and his co-workers, the aim of that work must be kept in mind. The aim was to develop management information systems which would be both used by and useful for top management. The concept of critical success factors and the way to ascertain them by direct questioning helped managers realize and articulate their information needs. Rockart was not concerned with *explaining* success or with the creation of competitive advantage.

Hence Rockart's concept of critical success factors can not immediately be transferred to the area of business strategy formation. From the viewpoint of business strategy formation, his critical success factor concept has a number of deficiencies. These should not be held as a criticism of Rockart's work, but as a criticism of uncritically applying the same concept in the context of business strategy.

From the viewpoint of strategy formation, the concept of critical success factors remains *vague*. The four sources of critical success factors cover a wide range of very different factors. They include factors which affect all businesses in an industry in the same way, as well as factors which can account for the differences in performance within an industry - where the latter have considerably more strategic importance than the former. They include, mirrored in the *build vs. monitor* distinction, factors which the business can influence, and factors which it cannot influence. From a strategic viewpoint, it may be more appropriate to distinguish more sharply between environmental forces and business competencies - where *building up* a business competence may be a reaction towards *monitoring* a development in the environment.

Rockart's interview method may be appropriate in the context of designing management information systems, since basing such a system on the executives' own perceptions will increase their motivation to use it later. From the viewpoint of strategy formation, however, it must be noted that executives' perceptions of critical success factors may be wrong, leading to catalogues of critical success factors which lack external validity. Numerous psychological mechanisms are known which cause decision-makers to misattribute causes of success (Barnes, 1984; Chakravarti, Mitchell & Staelin, 1981; Hogarth & Makridakis, 1981; Stevenson, 1976).

The critical success factor concept in the management information systems literature can therefore only be used as a source of inspiration for theory and method development in strategy formation.

Key success factors in strategy research

Research in the area of strategy formation varies widely with regard to meta-theoretical assumptions, including, among other things, the view on causality. Since a key success factor is a statement about a causal relationship, namely between success and some cause of success, the way the key success factor concept is used varies between the various schools of thought as well.

For the sake of simplicity, only three schools of thought will be distinguished in the following (Grunert, in press; but cp. Mintzberg, 1990a). These are the design school, the planning school, and the shared-experiences school.

Key success factors as a business characteristic. The *design school* maintains that every business is unique in all aspects, and every business therefore also has to find its own unique match with its environment. It is therefore not possible to generate general statements about the causes of success, and the term key success factor, if it is used at all, can have meaning only with regard to a single business. Consequently, the only form of research methodology applicable for finding key success factors is the case study (see Christensen et al., 1987; and the critique by Mintzberg, 1990b).

Indirectly, causal statements still have their place, also in the design school. The use of the case method in business education, as promoted by this school, builds on the idea that, by looking at many cases, one develops an understanding, an intuition for business ecology, which, in future problem solving situations, will improve the ability to look at the right cues in the environment and come up with the right strategic decision. In this way, general causal statements about success are possible, but they cannot be made implicit, because they are buried in the decision-makers intuition, i.e., they have become automatic, perceptual and intellectual skills.

The basic philosophy of the design school is therefore not compatible with the aim of establishing explicit general statements about the key success factors in an industry. The key success factor concept can be used in training business executives, but not in building up a general base of knowledge that could be communicated to the business community. In the final analysis, the design school maintains that research in the area of strategy formation is not possible.

Key success factors as a planning tool. The planning school aims at developing planning instruments which help businesses in finding the right strategy. A main assumption is that, by providing input which helps decision-makers in structuring their thoughts, the quality of decision-making can be improved. Encouraging decision-makers to reflect their own assumptions about the causes of success - key success factors as a planning tool - is one possible example. It is hence assumed that decision-makers have theories of their own, subjective theories linking success to its causes (see, e.g., Ferguson & Dickinson, 1982; Hofer & Schendel, 1978; Ohmae, 1982). Neither the theoretical foundation for the concept nor the method for measuring it are central to the discussion. With regard to method, an eclectic approach is preferred

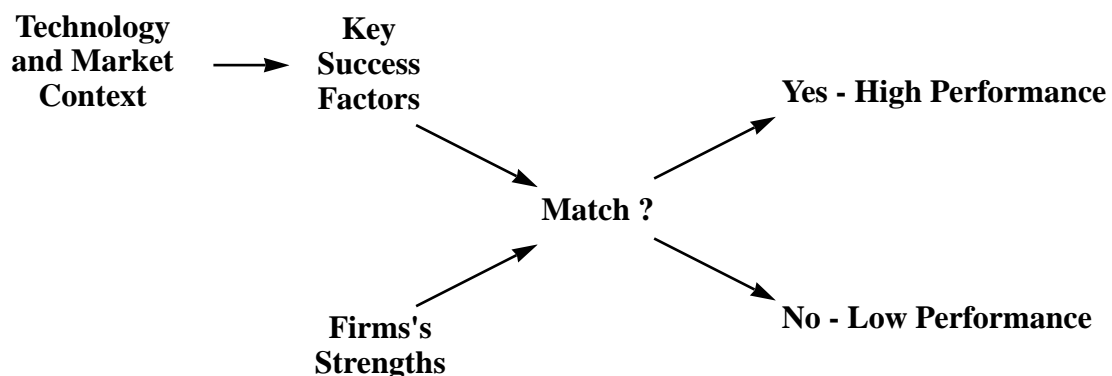
(e.g., Leidecker & Bruno, 1984), with more emphasis on variety than validity. It is the *process* of building a consideration of key success factors into planning, which improves strategy formation. It is emphasized that key success factors are small in number. By forcing the decision-maker to identify and concentrate on a small number of factors, a process of reasoning is started which, by virtue of its systematic nature, actually may lead to improved strategy-formation - even though this has never been demonstrated empirically.

The planning school, just as the design school, puts emphasis on improving the skills of decision-makers. However, since decision-making in the planning school is not primarily related to unconscious intuition, but to conscious problem-solving, the instruments and methods devised are potentially useful to contribute to a general body of knowledge as well. It becomes possible to obtain general knowledge on *how* decision-makers tackle their tasks, and also *how* their problem-solving can be improved. Specifically, it becomes possible to obtain knowledge about decision-makers *perceived success factors*, about how these perceptions are shaped, and how they influence strategy formation.

It would be still more exciting, if perceived success factors could be compared to *actual success factors*. The latter is what the last view of key success factors is about.

Key success factors as a market description. The *shared experiences school* maintains that the area of business strategies is amenable to research aimed at finding nomological statements. It is believed to be possible to find out how different strategy types are linked to business success under various conditions. This school can be called the shared experience school, because it builds on the expectation that, if experience on business strategies is shared, it becomes possible to build up general, empirically based theoretical knowledge, which then can guide the selection of business strategy. For this school, business success is governed by causal relationships, which exist as an objective truth, and which gradually can be uncovered by research.

Figure 2: The shared-experiences view on key success factors (from Sousa de Vasconcellos & Hambrick, 1989)



Industrial organization theory, and its transfer to the area of strategy formation (e.g., Luchs, 1986; Porter, 1980, 1985) therefore provides a source of hypotheses on key success factors, and also a methodological tradition for testing these hypotheses.

As noted, hypotheses can also be inductively established, based on exploratory empirical research instead of theory. Studies on factors distinguishing successful from unsuccessful businesses (like the well-known Peters & Waterman, 1982, book) are an example of this: based on the expectation that there are some general causes for success, possibly such causes are identified in the comparison process, without establishing that these factors have indeed been causal.

This fourth view on key success factors is certainly the most ambitious one, and hence also faces the most severe obstacles. In empirical studies which have aimed at testing hypotheses about key success factors, the amount of variance explained in the performance measure has often been low. At least two groups of reasons can be given for this. The first is concerned with the general problem of causal inferences in non-experimental research. Lacking the control mechanisms of an experiment, causality must be established based on covariation, temporal sequence, and simultaneous measurement of all possible competing explanations. Especially the latter is often difficult to achieve. In addition, both success and factors leading to it are often difficult to operationalize, and often little is known about the reliability and validity of the measurements.

While these problems may be overcome by using a more sophisticated methodology, a second group of problems may be still more difficult to solve. They are connected to the dynamic nature of causes of success in a market (Chamberlain, 1968). Success factors may be transient, and this problem will be more serious, the more concretely the factors are formulated. In addition, recognition of the success factors operating in a market by the actors in that market, may actually change them: when everybody invests into the same skills and resources, the ability of variation in these skills and resources to explain variation in success will necessarily decline.

3. Key success factors and competitive advantage: An extended view

In the following, we will attempt to sketch an extended view on key success factors, which incorporates both the market description and planning tool views mentioned above. This takes into account that, on the one hand, a planning tool's usefulness necessarily depends on the validity of the insights it creates, so that a planning tool aiming at a better understanding of market conditions should preferably rest on a methodology which aims at a valid market description. On the other hand, valid market descriptions, when used by decision-makers, may result in the very object of the investigation, namely the market, changing.

Meta-theoretical assumptions

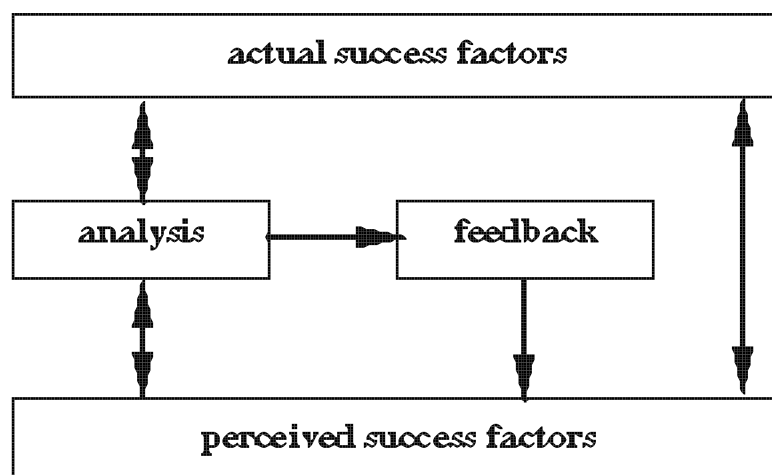
We start with a few meta-theoretical assumptions. These are necessary in order to develop theory and method. Like all such assumptions, they cannot be proved empirically. Instead, their validity is dependent on how convincing they are to other researchers.

We start by defining *success* as a business's performance, with regard to some performance criterion like return on investment or profit, which is superior to the performance of other businesses it is competing with. The task of explaining success thus becomes the task of explaining variations in performance. Four meta-theoretical assumptions will be presented with regard to this task. The main ideas are also summarized in figure 3.

- **Assumption 1:** Determinants of performance in a market are sufficiently stable over a time span of sufficient length to make them amenable to statistical analysis.

This assumption is necessary, if an analysis of differences in performance and its determinants in a market shall be possible at all. The assumption rules out the possibility that markets are so turbulent that no regularities whatsoever can be observed, or, put in another way, that future determinants of differences in performance have no relationships to past determinants. The very fact that markets exist and businesses survive speaks for the assumption and against the extreme view of market turbulence, because assumption 1 is not only a prerequisite for any scientific analysis of business performance, but also for any experience-based learning in a practical context.

Figure 3: Meta-theoretical assumptions



Assumption 1 does not claim that differences in business performance can be completely related to determinants, which have the mentioned stability. It only claims that such determi-

nants have an impact on performance which is sufficiently large to warrant their investigation. A certain proportion of the variance in performance may nevertheless be due to factors which are either random or of such short duration that they are difficult to analyse empirically. Also, aggressive initiatives by major actors may occasionally change key success factors in a market (Ohmae, 1982). It is assumed that such changes are comparatively rare.

The time span in which a determinant of differences in performance is stable may vary considerably, and in general one may expect a trade-off between the level of generality vs. concreteness of the determinant and the time-span in which it is stable: the more general the determinant, the longer the time span. Generality is, of course, linked to information content: the more general the factor, the lower the information content. At the extreme, a factor may be so general that it is true over a long time period almost by definition. One example may be market orientation as a determinant of performance.

We are concerned only with those determinants of performance which are actionable from the viewpoint of the business. This, however, is no real restriction, because, in the long run, most determinants are actionable. Having a well-established brand name or a convenient downtown location may not be actionable in the short, but certainly in the long run. Likewise, we drop the build/monitor distinction developed by Rockart, because external market forces which affect all businesses in a market in the same way do not contribute to the explanation of the variance in business performance within that market. However, actions taken in response to such forces can explain variance, and are hence potential determinants of performance. Thus, demographic developments in the market are no cause of superior performance, but product development in response to such developments may be.

- **Assumption 2:** Actual and perceived determinants of differences in performance are interdependent.

Business executives will usually perceive the causes of differences in performance in a market, but this perception will be imperfect, distorted by the limitations of human information processing capacity, various cognitive biases, the impossibility to know the consequences of actions which have not been taken etc. Thus, the perceived causes of differences in performance will be related to, but not be identical with, the actual causes of differences in performance.

While the actual determinants of differences in performance thus influence the perceived determinants, this also works the other way round. The actions which business executives take on the basis of the perceived determinants will influence the actual determinants. If everybody in a market perceives that broad distribution coverage is a cause of superior performance, and everybody indeed achieves broad distribution coverage, then there is no more variation in this factor, and it will no longer be able to explain differences in performance between the competing firms.

- **Assumption 3:** Analysing actual and perceived determinants of differences in performance will improve the actors' understanding of the market.

What this assumption expresses is the belief that, here as otherwise, the scientific method is superior to everyday observation. A scientific investigation of the determinants of performance can overcome some of the biases and deficiencies which account for the differences between actual and perceived determinants. In this way, it can improve understanding of the market. But also an investigation of the perceived determinants of performance can help the actors realize and make explicit their own assumptions about how the market works. Confronting these assumptions with the results from an analysis of actual determinants is a potentially powerful instrument towards improved understanding of the market.

- **Assumption 4:** Analysing actual and perceived determinants of differences in performance and providing feedback to the actors will change both actual and perceived determinants of differences in performance, albeit slowly.

As everywhere in the social sciences, measurement will change the object of measurement. Investigating perceived determinants of differences in performance, e.g., by interviewing business executives, will result in them becoming more aware of their assumptions about these determinants, which means that these assumptions will change somewhat (Bullen & Rockart, 1981). Communicating results about actual determinants of differences in performance to executives will change these assumptions further. Since changed assumptions will lead to changed actions, which then may change the actual determinants as well, the latter will indirectly also be affected by the investigation.

However, such changes will be slow. Perceptions, which are based on repeated own experience, are not easily changed, especially not by reports about an investigation, the foundations of which may be poorly understood, and especially not if this investigation leads to results which differ markedly from the conclusions based on own experience. Even when the perceptions of determinants of differences in performance change markedly as a result of the investigation, strategies and their implementation will change slowly, resulting in only gradual changes in the actual determinants.

Frame of reference

We will now specify a general theoretical framework relating the concepts of actual and perceived determinants of differences in performance to the concept of competitive advantage.

Several writers (Day & Wensley, 1988; Petersen, 1991; Porter, 1980) have argued that causes of difference in performance within a market can be analysed at various levels. The immediate cause of differences in performance, these writers argue, can be reduced to two basic factors: the *value which customers perceive in the products/services offered*, and the *costs incurred in creating this perceived value*. The more value customers perceive in a market offering relative to competing offerings, and the lower the costs in producing that value relative to competing producers, the higher the performance of the business. Hence, businesses producing offerings with a higher perceived value and/or lower relative costs than competing businesses are also said to have a *competitive advantage* in that market.

It should be noted that value and costs can be both positively and negatively related, and that they can influence profits or other performance measures in various ways (Luchs, 1988; Phillips et al., 1983). Higher perceived value can allow a price premium, thus increasing ROI, but at the same time preventing high market share. In this case, it can also be expected to be associated with higher costs, even though, in some markets, producing high quality may actually lower cost because of less waste. But higher perceived value can also lead to an increased market share, which can lead to decreased costs, resulting in a higher ROI as well. Alternatively, high market share may be reached by low prices, based on low costs.

There is thus no one-dimensional measure of competitive advantage, and perceived value and relative costs have to be assessed simultaneously. Given this two-dimensional nature of competitive advantage, it will not always be clear which of two businesses will have a competitive advantage over the other. In figure 4, business B will clearly have an advantage over business A in case I, and clearly have a disadvantage in case IV, while cases II and III do not immediately allow such a conclusion. Business A *may* have an advantage in case II, if customers in the market are highly quality-conscious, have differentiated needs, and low price elasticity, while business B may have a similar advantage in case III when customers mainly demand basic functionality, have homogeneous needs, and high price elasticity.

Even if A has a clear competitive advantage over B, this may not necessarily result in a higher ROI for A, if A has a growth and B a hold policy. Thus, performance would have to be measured by a combination of ROI and capacity expansion, which can be regarded as postponed ROI (Petersen, 1991).

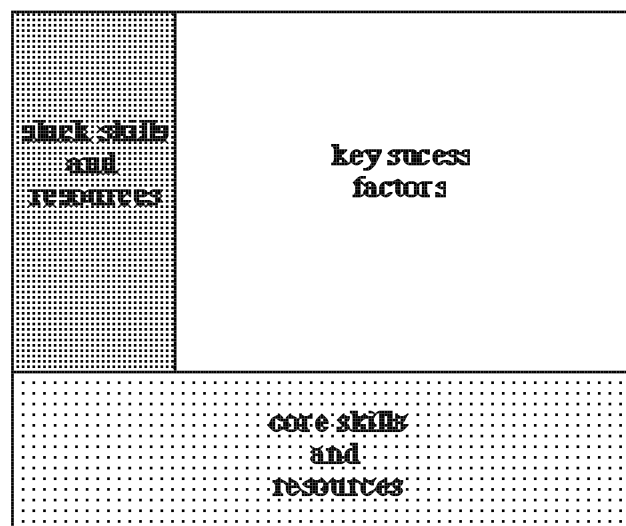
While the relationship between perceived value, relative costs, and performance is rather intricate, we can retain the basic statement that these two variables are the cornerstone of competitive advantage, since both of them, everything else equal, will be monotonically related to performance.

Figure 4: Perceived value, relative costs, and competitive advantage

		perceived value	
		higher for B	higher for A
relative costs	lower for B	I	II
	lower for A	III	IV

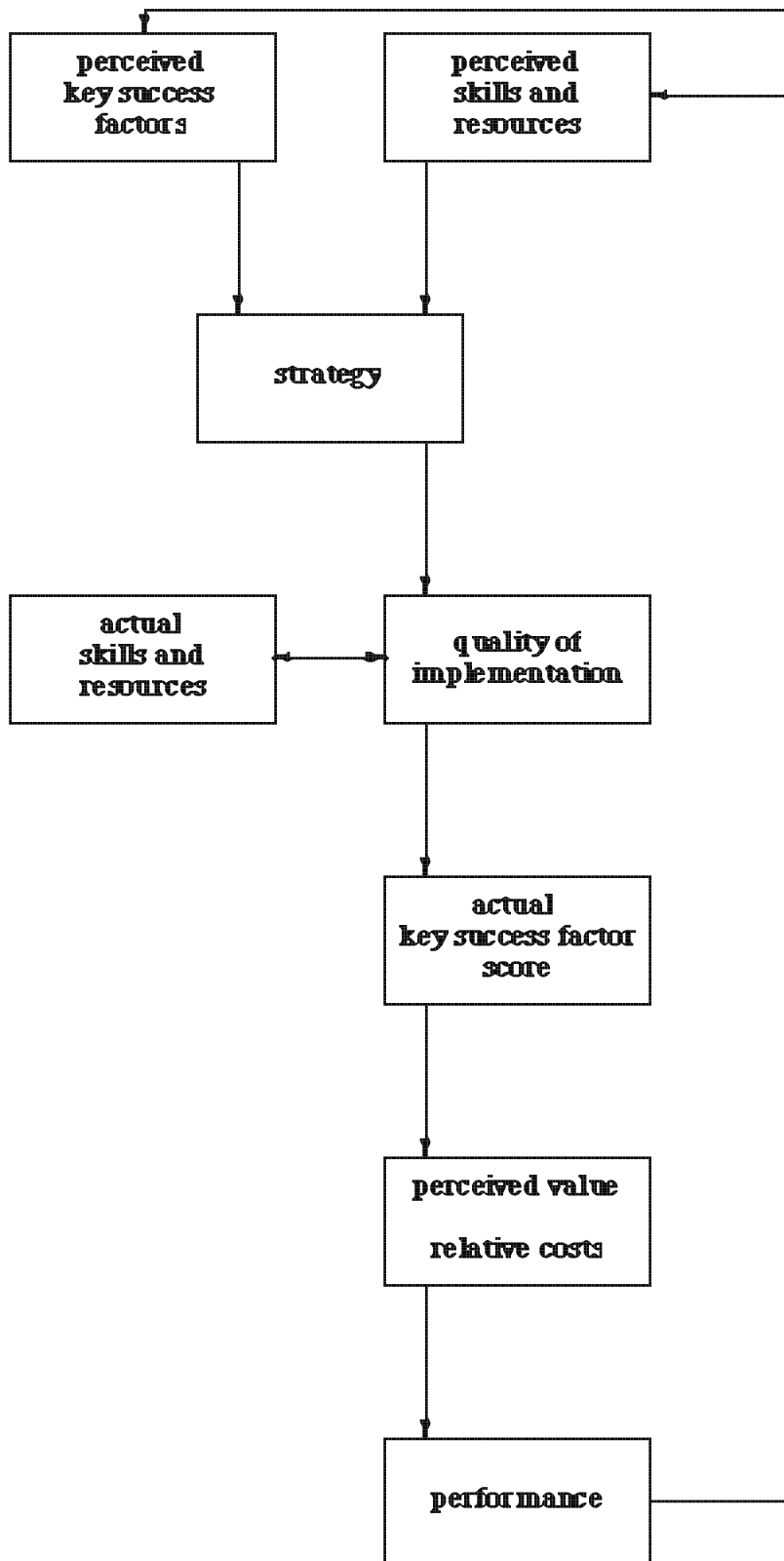
The perceived value created, and the costs incurred, will depend on the business's skills and resources, which thereby become second order determinants of differences in performance. We may distinguish three kinds of such skills and resources, as shown in figure 5. *Core skills and resources* are those which are necessary in order to be able participate in the market. Thus the competitors in a market will not usually be very different with regard to these skills and resources, and they will not explain differences in created perceived value and in relative costs, and in the resulting performance. In Varadajaran's (1985) terms, they are *failure preventers*, but not *success producers*. They may, however, act as barriers to entry for potential new competitors, and hence raise the *average* level of performance in the market. *Slack skills and resources* are no prerequisite for being in the market, and do not explain large portions of the variation perceived value and/or relative costs either. Finally, there is a third class of skills and resources, differences which explain the bulk of the variance in perceived value and/or relative costs. These we may call *key success factors*.

Figure 5: Skills and resources



Key success factors are hence regarded as those skills and resources which have the highest leverage on value and costs. Competitive advantage, and indirectly business performance, can therefore be related to how the business scores with regard to these skills and resources, which, according to the terminology from the preceding section, can be regarded as the actual determinants of differences in performance. How the business scores on these characteristics will, in turn, depend on whether the business has adopted a strategy which implies investing into these skills and resources. And this will depend on the perceptions of the decision-makers - of the perceived determinants of differences in performance, but also of the perceived skills and resources in the business. It is possible, e.g., that decision-makers believe certain skills and resources to be key success factors, because they actually were key success factors earlier, even

Figure 6: Key success factors and competitive advantage



though they now, because of changed market conditions, have become slack resources. This whole process is depicted in figure 6, which provides a framework for relating actual and perceived determinants of differences in performance to strategy, implementation, and actual performance.

Key success factors can be distinguished on two dimensions which have implications for the attainment of competitive advantage. These are their *changeability* and whether they are *conjunctive* or *compensatory*.

Conjunctive key success factors refer to skills and resources which are necessary conditions for superior performance in a market. The performance of a business will always be related to the degree to which it has these skills and resources, and a lack of skills and resources here cannot be compensated for by superior skills and resources in other areas. *Compensatory key success factors* refer to a set of skills and resources, where businesses can choose to emphasize one or several of these. Lower scores with regard to some of these factors can be compensated for by higher scores on other factors. The compensatory key success factors can hence be the starting point for strategic grouping: Businesses, which have decided to build the same set of compensatory key success factors compete with each other based on the same set of skills and resources, and can be considered a strategic group.

Changeability refers to how fast it is possible for a business to acquire the skill or resource in question. The lower the changeability, the more permanent will be the competitive advantage for the business having that skill or resource. When the changeability of a compensatory key success factor is low, entry barriers with regard to the corresponding strategic group will be high. Thus, the changeability concept refers to Porter's (1990) *advantages of high and lower order*.

Figure 7: Example of key success factor profile

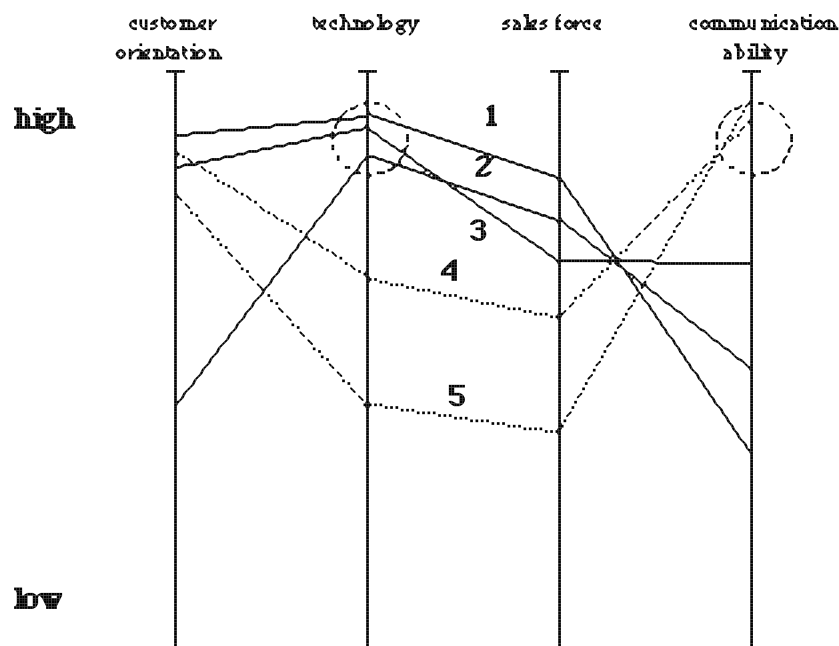


Figure 7 shows a fictitious example of business profiles with regard to a set of key success factors. *Customer orientation* is the conjunctive factor, whereas the other factors are compensatory. Businesses 1 to 3 form a strategic group competing on technology, whereas businesses 4 and 5 form a strategic group competing on communication ability.

The figure is instructive with regard to the analysis of differences in performance. Businesses *within* a strategic group will have very low variation on the key success factor defining that group. By analysing differences in performance within that group, this factor would not even show up as a success factor - only by analysing differences in performance *across* groups will this factor be identifiable as a success factor. Thus, analyses both within and across groups are of interest.

The analysis *across* groups will give the complete picture of key success factors, allow to distinguish between conjunctive and compensatory factors, and give information on the relative importance of the various factors. Differences in performance across groups will hence be explicable with regard to how the businesses fare on the conjunctive factor(s), and by which strategic group they belong to. Thus, in the example, business 2 would be expected to have lower performance due to its low customer orientation, regardless to which group it belongs. Whether businesses 1/3 have higher or lower performance than businesses 4/5 would then be explained by the relative importance of technology versus communication ability.

Differences in performance *within* strategic groups would primarily be related to the conjunctive factor(s), i.e., customer orientation in the example. Remaining differences would be explained by how the businesses score on the key success factors which have not received strategic emphasis. Thus, in the group competing on technology, business 2 would be expected to fare worst, while the relative performance of businesses 1 and 3 would depend on the relative importance of sales force and communication ability.

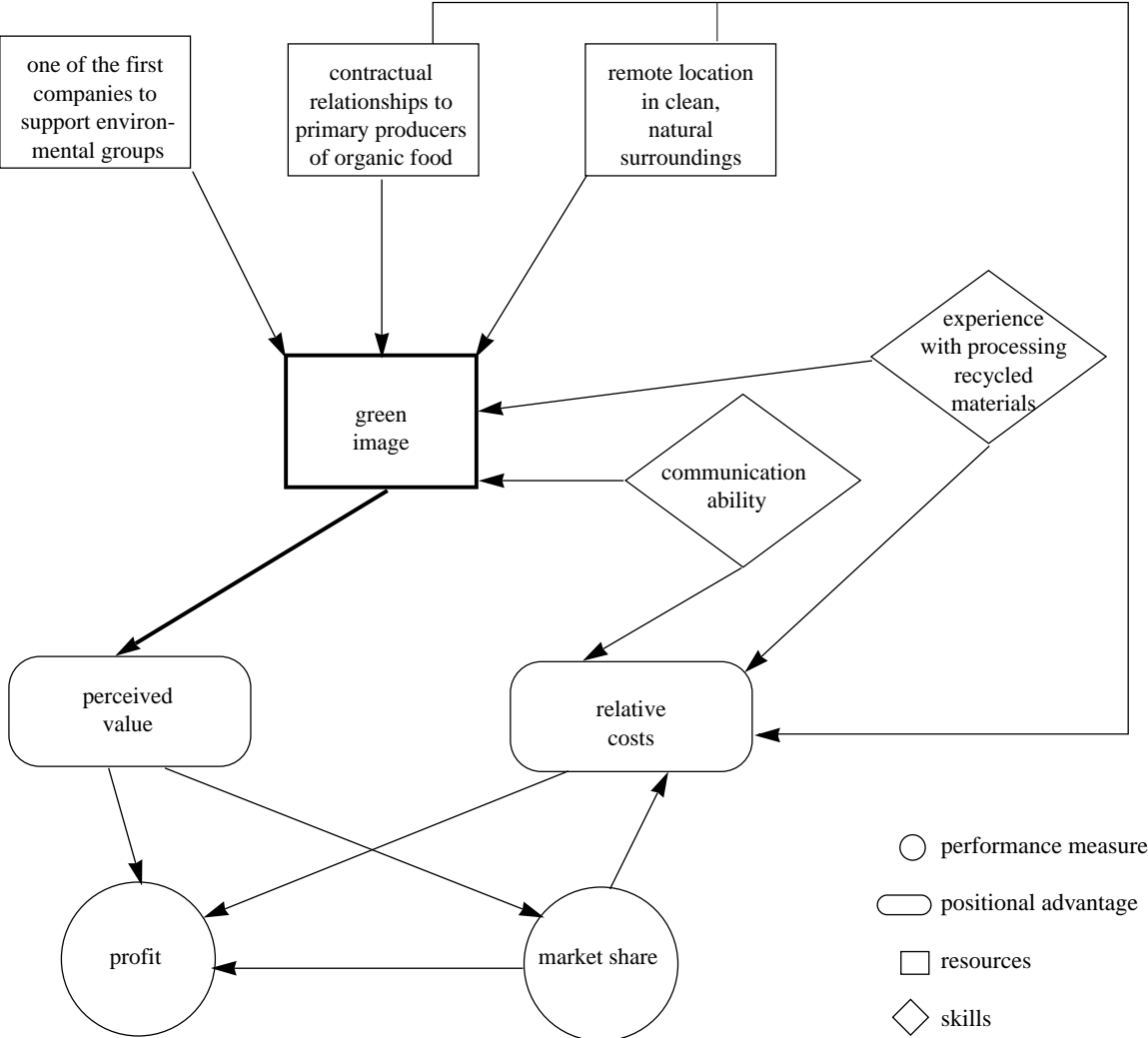
Key success factors and auxiliary skills and resources

Figure 7 depicts success factors as a simple first-order system of causal relationships. This is, of course, a drastic simplification. A resource or skill, which has a major impact on perceived value and/or relative costs, will be related to other resources or skills, resulting in a potentially rather complex network of causal relationships.

Figure 8 gives a fictitious example from a food product market. Imagine that having a green image is a resource which, on the market in question, contributes considerably to perceived value, and can therefore be called a key success factor on that market. Several other skills and resources can contribute to a green image: being located in a clean, natural environment, having contractual relationships with primary producers of organic food, whether one was among the first to support environmental groups, experience with processing recycled material, or communication ability. Most of these skills/resources will also be related to relative costs.

Depending on the level of abstraction chosen for the analysis, such networks may be more or less complex. But a key success factor will always be embedded in a network of other relevant skills and resources. For analytical and practical purposes, we propose that the term key success factor be reserved for those skills and resources which have a direct and sizable impact on perceived value and/or relative costs. Hence, in the example, green image is a key success factor, while location is not - only when the remote location in clean, natural surroundings is used to contribute to the building or maintaining of a green image will it contribute to higher performance (Location may, of course, be a key success factors, if it were a major cost-determining factor). In this way, the term key success factor is reserved for those skills/resources which have the highest strategic leverage, in that a decision to invest in these skills/resources will have a strong impact on perceived value and/or relative cost, and, at the same time, point to other skills or resources needed to build the key success factor. These other skills and resources can be termed auxiliary skills and resources.

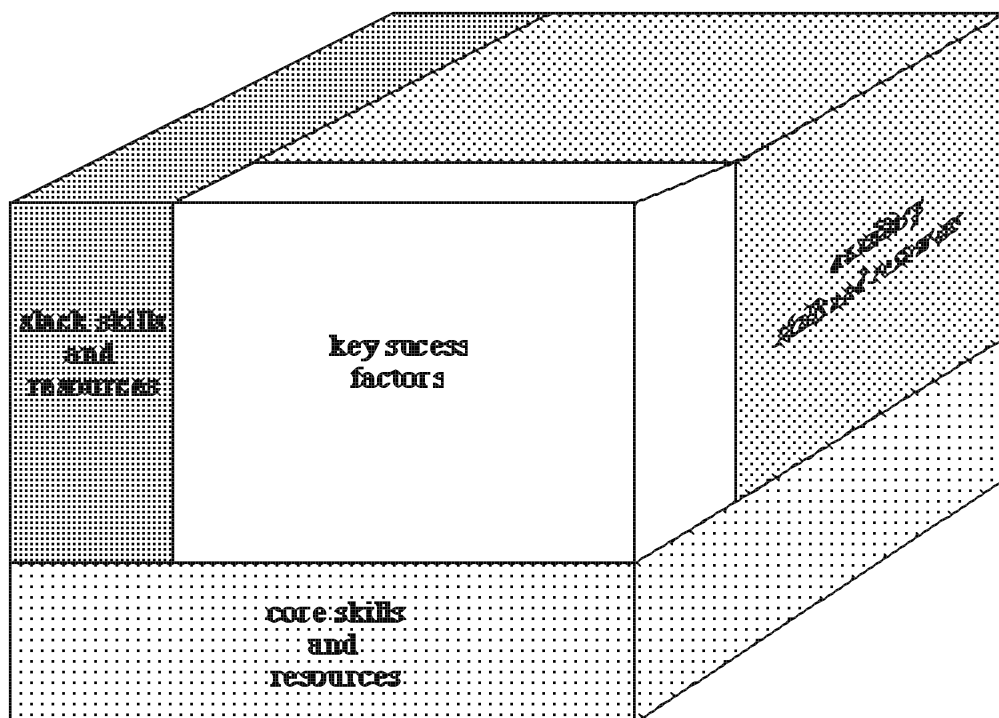
Figure 8: A hypothetical causal structure on a key success factor embedded in auxiliary skills and resources



It should be noted that the distinction between compensatory and conjunctive factors can be applied to auxiliary skills and resources as well. In order to build up a green image, stable relationships to primary producers may be a necessary condition, while the first mover advantage of having supported environmental groups first may be substituted by a remote location.

Figure 9 shows an extension of figure 5, which takes into account that skills and resources have "depth", i.e., are causally related to each other as in figure 8, and visualizes the distinction between key success factors and auxiliary skills and resources.

Figure 9: Skills and resources - extended diagram



Definition and research agenda

It is now possible to pull our view of key success factors together to a definition.

A key success factor is 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.

Several characteristics of that definition should be noted:

- A key success factor is a causal relationship. It expresses a relationship between the competitive advantage a business enjoys 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 and/or relative cost. They are hence not directly related to performance measures like ROI. This may be an advantage, since the relationship between perceived value/relative cost and ROI may be intricate, and perceived value/relative costs are better indicators of competitive advantage.

The last point does not preclude that it may still be meaningful to measure performance in the empirical research, if the aim is to estimate some more elaborate causal network like in figure 8, which involves the link from perceived value/relative costs to performance.

Our view of key success factors leads to the following four main research tasks for an empirical analysis of key success factors in a market:

- *Measure the perceived key success factors.* This is mainly a qualitative task, aimed at unveiling business executives' explicit or implicit hypotheses about the causes of superior perceived value and lower relative costs. If desired, a measure of subjective relative importance can be added, and perceived auxiliary skills and resources could be measured as well.
- *Find additional hypotheses about actual causes of superior perceived value and lower relative costs.* Since business executives' perceptions can be flawed, it is important to look for other sources of hypotheses about key success factors. Such hypotheses may come from theory, industry experts etc.
- *Measure how businesses score on the potential key success factors.* This is a quantitative task, involving finding objective measures for the skills and resources appearing in the business executives' perceptions of key success factors, and in the

additional hypotheses found. If desired, measures of auxiliary factors can be added.

- *Measure perceived value and relative costs.* By relating these measures to the objective measures of skills and resources, it is possible to identify key success factors and classify them as compensatory or conjunctive. If desired, measures of performance can be added.

These four research tasks clearly call for a combination of research methods. A more detailed discussion on suitable methods will be taken up in section 5.

4. Key success factors and market characteristics

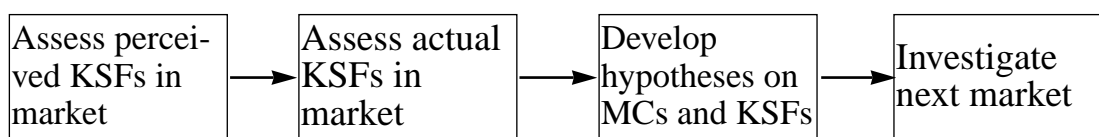
Key success factors have been defined as business skills and resources with high leverage on perceived value and relative costs, and they have been defined as market-specific. When key success factors are thus defined as business variables, they must be in correspondence to some *market characteristics*, which mandate that some skill is a key success factor in one but not in another market. If an analysis of key success factors should not only be a market description, but contribute to a more general theory about competitive advantage, then it should be linked to an analysis of market characteristics. Knowledge about the joint determination of superior performance by key success factors and market characteristics would then lead towards a *contingency theory of competitive advantage*.

Figure 10: Inductive and deductive mode of investigating key success factors

deductive mode:



inductive mode:



The problem of relating key success factors to market characteristics can be tackled in two ways: *deductive and inductive* (see figure 10). The study by Sousa de Vasconcellos and Hambrick (1989) is an example of the deductive mode: Two market characteristics and a large list of skills and resources were combined with theoretical reasoning to develop hypotheses on which of these skills and resources would be key success factors under which combination of market characteristics. These hypotheses were then tested by finding markets, which corresponded to the combination of market characteristics to which the hypotheses referred.

We would like to argue that empirical research on key success factors could also be done using the inductive approach, since a contingency theory of competitive advantage is, at the present time, a theory development goal, not a solid basis for the deduction of hypothesis. Inductive research would start by analysing key success factors in a market, both perceived and actual, and on that basis develop hypotheses on the market characteristics which have resulted in the fact that these skills and resources have become key success factors. These hypotheses can then be investigated by looking at additional markets, which differ on the hypothesized market characteristic. While key success factors can be analysed within a market, an analysis of the relationship between key success factors and market characteristics always requires an analysis across markets, in order to be able to review the presence of interactions between skills and resources and market characteristics in explaining differences in perceived value and/or relative costs.

The need for more inductive research is also mirrored in the present state of morphologies on skills and resources and market characteristics. Figure 11 shows a sample of these. Such morphologies have mainly come from the industrial organization and strategy formation literature. Many, especially of the earlier ones, did not distinguish between performance, first order causes of differences in performance, i.e., perceived value and relative costs, and second order causes of differences in performance, i.e., skills and resources in the terminology used here. Thus, market share has been mentioned both as a resource and as a performance indicator. We have, in figure 11, chosen examples of morphologies which regard skills and resources in the same way as we do in this paper (other examples can be found in, among many others, Buzzell & Wiersema, 1981; Hatten, Schendel & Cooper, 1978; Imel & Helmberger, 1971; Miller & Friesen, 1977; Shepherd, 1972).

The *skills and resources* morphology by Petersen (1991) is a good example of one in the industrial organization tradition. Although it is very well-reasoned, and draws on the strategy literature as well, it is mostly geared towards explaining differences in efficiency, and not in effectiveness. The skills and resources he mentions will mostly lead to cost advantages, and none of the categories in his list refer explicitly to a skill or resource which allows or mirrors better understanding of customers, leading to higher perceived value.

Porter's (1985) value chain, the perhaps best known example of a typology of skills and resources, is more balanced with regard to potential contributions towards both value and costs. It follows a classical functional dissection of the business, however, and is not explicitly market-oriented either.

Figure 11: Morphologies of skills and resources and market characteristics

<p>Petersen (1991) (skills and resources)</p> <p>locational advantages</p> <p>production factors physical infrastructure social infrastructure suppliers and purchasers</p> <p>scale and scope economies</p> <p>scale in production scale in transactions scope in production scope in transactions</p> <p>first-mover advantages</p> <p>productivity gains through experience</p> <p>employee motivation</p> <p>monopsonistic bargaining power</p>	<p>Sousa de Vasconcellos & Hambrick (1989) (skills and resources)</p> <p>information and communication</p> <p>image technical knowledge of the sales force marketing knowledge of the sales force advertising and sales promotion</p> <p>product</p> <p>product R & D service</p> <p>product cost</p> <p>process research firm size customer financing</p> <p>product delivery</p> <p>distribution location of manufacturing facilities</p> <p>production</p> <p>technical skills of workforce quality control production management purchasing labor relations technical sophistication of the equipment</p>	<p>Hofer (1975) (market characteristics)</p> <p>supplier variables</p> <p>degree of supplier of concentration major changes in availability of raw materials major changes in conditions of trade</p> <p>industry structure variables</p> <p>type of product degree of product differentiation # equal products price/cost structure economies of scale degree of automation degree of integration experience curves marginal plant size optimum plant size rate of product technological change rate of process technological change transportation and distribution costs barriers to entry critical mass for entry</p> <p>competitor variables</p> <p>degree of seller concentration aggressiveness of competition degree of specialization in the industry degree of capacity utilization</p> <p>market and consumer behavior variables</p> <p>stage of the life cycle market size seasonality cyclicality market segmentation buyer concentration buyer needs buyer loyalty elasticity of demand purchase frequency</p>
<p>Porter (1985) (skills and resources)</p> <p>inbound logistics</p> <p>operations</p> <p>outbound logistics</p> <p>marketing & sales</p> <p>service</p> <p>firm infrastructure</p> <p>human resource management</p> <p>technology development</p> <p>procurement</p>		

The list of skills and resources used by Sousa de Vasconcellos and Hambrick (1989) is more market-oriented than the previous two, but, at least according to the authors' intention, limited in its applicability to mature industrial markets.

As for morphologies of *market characteristics*, much of the strategy literature has concentrated on just one or a few, like, e.g., stage in product life cycle (Fox, 1973; Wasson, 1974), or technology and transaction complexity in the Sousa de Vasconcellos and Hambrick (1989) study. A rather comprehensive list of market characteristics with potential strategic importance has been compiled by Hofer (1975), and this list is reproduced in figure 11.

Such lists as in figure 11 can serve as an inspiration for empirical research, but have certainly not reached conciseness to such a degree that they can serve as a reliable basis for deriving hypotheses about the interaction of market characteristics and key success factors, underlining our call for more inductive research.

5. Methods for measuring key success factors

It is now necessary to relate the agenda for research in section 3 to some more concrete research methodologies. An empirical analysis of key success factors along the lines proposed in this paper has to draw on methods from several schools of research on strategy. The planning school, with its emphasis on subjective methods, can provide ideas on how to measure perceived success factors and generate hypotheses on actual success factors. The shared-experience school, with its emphasis on objective measures, can provide ideas on how to test the hypotheses thus generated, and hence establish the actual success factors. A combination of methods is thus called for.

The research agenda presented above can be translated into two major methodological problems: Finding the business decision-makers hypotheses about key success factors, i.e., the perceived success factors, and confronting the hypotheses found in this and other ways with reality, i.e., establishing causal relationships about actual success factors.

Finding the actors' hypotheses

Unveiling business executives' subjective theories about the causes of success can, in principle, be done through interviewing and/or through observation. A systematic way to tackle this is the *theory-in-use* approach (Heffring, 1985; Skytte, 1990; Zaltman et al., 1982). This approach actually has a still broader aim, in that it attempts not only to unveil subjective theories, but also their objective validity. If we reduce the sequence of steps advocated by the theory-in-use approach to what is necessary to unveil subjective theories, then the following sequence can be established:

- identifying theory holders
- find one or more success indicators
- observe behaviour or practice aimed at success (this includes interviewing)
- develop principles that describe the observed behaviour or practice, and specify them as concepts and their linkages
- try to find interrelationships between the various principles
- try to map the subjective theory of both the theory holder and the researcher.

These are very general guide lines, which can help structure qualitative techniques like depth interviews or in-depth case studies involving both interviews and observation. With regard to the intricate problem of generating concepts from observational data, additional methodological advice is available from the discussions about grounded theory (Glaser & Strauss, 1967; Turner, 1981).

Some more specific instruments are potentially helpful in solving part of the task. Three such instruments will be mentioned.

Laddering is a methodology developed in consumer research, where it is used to measure consumers' cognitive structures about consumer products. The main idea is that product preferences are linked to concrete product attributes, which then may be linked to abstract product attributes, functional consequences, psycho-social consequences, instrumental values, and terminal values (Peter & Olson, 1990; Olson & Reynolds, 1983). Such a sequence is called a means-end chain. Such chains are measured by having respondents generate concrete product attributes which differentiate products, ask for their preferences with regard to that attribute, and then keep asking "why do you prefer...", thus pushing up the respondent a ladder of abstraction.

Laddering has many problems (Grunert & Grunert, 1991), but may be potentially useful in measuring decision-makers' subjective causal chains. The respondent could start by specifying some success criteria and how the main competitors differ with regard to these criteria. Then, the interview could keep asking "what is the reason for..." until the subjective causal chain seems to be exhausted.

Laddering has the potential advantage that it solves the qualitative and the quantitative tasks in measuring subjective success factors at the same time. It provides both lists of potential causes of success and an estimate of the subjective strength of a causal relationship, at least in the aggregate over a group of respondents.

Sequence analysis, proposed by Grunert (1990) also in the context of consumer research, in principle leads to the same kinds of results as laddering: an estimate of a subjective network of relationships. The main difference is that the method works on the basis of natural speech data, like those that would result from a depth interview.

Rating prespecified causal networks is a simple method to estimate the strength of subjective causal relationships once the possible causes and effects are known. It has been used, e.g., to

estimate the subjective causal maps about economic phenomena of people with different party affiliation (Lunt, 1989; Williamson & Wearing, 1991). The basic idea is to give people a matrix, where possible causes and effects represent rows and columns, and fill in the cells with estimates of the strength of causal relationships.

All three methods have the advantage that they take into account that perceived success factors may not be simple bivariate relationships, but more intricate causal networks. All three methods generate matrices with cell entries measuring the perceived strength of a causal relationship. This matrix can then be processed using network algorithms, leading to causal maps.

Establishing causal relationships

Estimating the actual success factors involves two basic problems:

- finding operationalizations of perceived value and relative costs, their potential causes, and other relevant variables,
- establishing causal relationships in a non-experimental setting.

With regard to the first problem, the difficulty is not so much that there are several potential indicators for perceived value, or relative costs, or possible causes of it. On the contrary, multiple measurements are desirable, since they tend to increase reliability. The problem is that it will often be difficult to obtain "objective" measurements. We may distinguish three levels of "objectivity" (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 obtain.
- "Self-reported objective measures" (Dess & Robinson, 1984) imply that one relies on a business executive in giving relative costs figures, e.g., 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 is not inspected by the researcher, who trusts in the validity of the figures given by the executive (who may have estimated the figure without data base).
- Finally, subjective ratings of the variable in question, e.g. on a five-point rating scale, can be used. The business executive would rate his business on a scale with poles, e.g., "very high cost advantage" to "very high cost disadvantage". This kind of measurement can be regarded as having the lowest degree of objectivity.

The second and third possibilities are widely used, e.g., in the PIMS data base. Such measures open many possibilities for measurement error (Grunert, 1990; Phillips, 1981; Venkatraman & Grant, 1986). However, by putting more emphasis on the psycho-metric properties of such measures, such errors may be kept at an acceptable level. Actually, Parasuraman and Varadarajan (1988) have shown that PIMS data are astonishingly robust, and Dess and Robinson (1984) have documented reasonably high correlations between self-reported objective measures and subjective ratings. Validity checks can always be obtained by having several respondents rate the same business, e.g., have competitors rate each other, etc.

Causal inferences in non-experimental research are an old problem in the social sciences (see, e.g., Blalock, 1964). It is now generally agreed that the following conditions should be met before one can maintain to have found a causal relationship in a field setting (Hildebrandt, 1983):

- the two variables in question have to be correlated
- there may be no demand characteristics because of the measurement device or the study design
- the two variables have to be temporally asymmetric, i.e., the effect has to be measured after the cause
- alternative causes have to be measured as well and ruled out.

The first condition is usually taken for granted, since it normally starts the investigation of a causal relationship.

The second condition may be violated when, e.g., both perceived customer value and the business's market orientation are measured by ratings from the same expert. It is fulfilled when perceived customer value is measured by customer ratings, and market orientation by a panel of experts.

The third condition can be met only by a longitudinal design leading to time series data. In many studies, this is impossible for practical reasons. If a cross-sectional design is necessary, the choice of the right length of time period, which the measures are meant to reflect, becomes important. As mentioned above, a very long time period is problematic because success factors may not be stable. A short time period may be problematic because of lagged effects; i.e., the effect of a success factors occurs first in the next period.

The fourth condition can never be fully met, because one can obviously never make sure that all relevant alternative explanations have been taken into account. However, by having a carefully designed qualitative phase before going into the quantitative measurements, the problem can be reduced. Based on a careful study of business executives' perceived success factors plus a perusal of theory, the emerging list of possible candidates for success factors will most likely be rather complete.

Structural equation models (e.g., Hildebrandt, 1983) like LISREL are the most appropriate statistical framework for an investigation of actual success factors. Structural equation models

allow the simultaneous testing of complex causal relationships, and they allow multiple measurements of the variables in the model. They have previously been used in strategy research, for example in a study on generic strategies (Phillips et al., 1983), and in a study on success factors in retailing (Hildebrandt, 1989). Their applicability may, however, be limited in inductive research, when the number of competitors on a market is small relative to the potential number of key success factors.

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MAPP publications

MAPP working papers

- No. 1: Grunert, K. G. & Baadsgaard, A. *Market-based Proces and Product Innovation in the Food sector: A Danish Research Programme*, January 1992
- No. 2: Thøgersen, J. *Fødevarerinnovation og Emballage - Miljøkonsekvenser og Forbrugerreaktioner*, Marts 1992
- No. 3: Bonke, J. *Choice of Foods - allocation of time and money, household production and market services*, September 1992
- No. 4: Grunert, K. G & Ellegaard, C. *The Concept of Key Success Factors: Theory and Method*, October 1992

MAPP conference papers

- Baadsgaard, A., Gede, M. P., Grunert, K. G. & Jensen, N. J. *Lagged life cycle structures for food products: Their role in global marketing, their determinants, and some problems in their estimation*, July 1992
- Grunert, K. G. *Towards a concept of food-related life style*, July 1992
- Jelsøe, E., Land, B. & Lassen, J. *Understanding consumer perceptions and priorities with relation to food quality*, July 1992

Furthermore there are a number of project papers, which are not available to the public.

The Mapp programme consists of the following 15 projects

1. Strategic Planning and Innovation Capability in the Danish Food Sector
Morten Kvistgaard & Kirsten Plichta, Copenhagen Business School; Lone Rossen, Biotechnological Institute
2. Innovation Capability as a Key Success Factor
Klaus G. Grunert & Hanne Harmsen, The Aarhus School of Business
3. Flexible Manufacturing in the Danish Food-Processing Industry - How to Integrate Management, Marketing and Technology
John Kjeldsen, The Aarhus School of Business
4. Definition of the Sales Potential for a New Food Product to be Launched on Home or Foreign Markets
Anne Martensen & Lorentz Andersen, Copenhagen Business School
5. Primary Producers and Product Innovation in the Food Industry
Villy Sjøgaard, University Centre of South Jutland
6. Controlling Processes of Production to Guarantee Process Characteristics Demanded by Consumers of Food Products: Paradigms and Danish Experiences
Esben Sloth-Andersen, Aalborg University Centre
7. The Role of the Distribution System in Product Innovation
Hanne Hartvig Larsen & Lasse Henningsen, Copenhagen Business School
8. Prototyping in the Danish Food Industry
Preben Sander Kristensen, Aalborg University Centre
9. Product Quality and Consumer Preferences: Assessing the Optimum Design of Food Products
Kai Kristensen, Hans Jørn Juhl, Anne Bech & Erling Engelund, The Aarhus School of Business; Carsten Stig Poulsen, Aalborg University Centre
10. Product Innovation and Packaging in the Food Industry - Environmental Consequences and Consumer Reactions
John Thøgersen & Tino Bech-Larsen, The Aarhus School of Business
11. The Consumer as Agent in Relation to Research and Development in Food Technology
Erling Jelsøe, Birgit Land & Jesper Lassen, Roskilde University Centre
12. Households' Choice of Foodstuffs with Different Kinds of Preparation
Jens Bonke, University of Copenhagen
13. The Cultural Dimensions of Food Consumption and the Implications for Strategy Formation and Implementation in Small and Medium-sized Danish Companies
Dominique Bouchet, Josette Andersen, Søren Askegaard, Tage Koed Madsen & Per Østergaard, Odense University
14. Market Surveillance Systems for the Food Sector
Klaus G. Grunert & Karen Brunsø, The Aarhus School of Business
15. Identification of Key Success Factors
Klaus G. Grunert & Charlotte Ellegaard, The Aarhus School of Business