

STRATEGIC PLANNING AS A LEARNING PROCESS, ITS EFFECT ON PLANNING EFFECTIVENESS AND BUSINESS UNIT PERFORMANCE - EMPIRICAL EVIDENCE FROM A GERMAN STUDY

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MOTIVATION

Planning and – in particular – strategic planning have been characterized as learning processes. However, the extent to which strategic planning processes have a learning character seems to vary widely in practice. Some authors have even argued that formalized strategic planning processes discourage learning and may thus be counterproductive to the effectiveness of planning. Despite the high relevance of the underlying issue for strategic management, little empirical evidence has been collected so far regarding the actual impact of learning in the strategic planning process on the effectiveness of planning and business unit performance, as well as the factors that determine a higher or lower degree of learning in strategic planning.

Thus, this paper aims at examining the empirical relationship between learning in strategic planning, its determinants, the effectiveness of planning, and business unit performance in German companies. In order to do this, relevant hypotheses will be derived, and these will then be empirically examined using factor analysis and structural equation modeling (LISREL).

DERIVATION OF HYPOTHESES

Learning in a Strategic Planning Process

There is rarely agreement within let alone between disciplines as to what learning is (cf. Fiol/Lyles 1985; Dodgson 1993). Based on cognitive and social learning theory, the learning process can be interpreted as a cybernetic feed-back loop aimed at the modification of internal models (cf. e.g. Miller/Galanter/Pribam 1960; Rotter 1966; Hacker 1978 and 1998). In the process, members of an organisation modify their interpretation of events (cf. Daft/Weick 1984) and develop shared understanding and conceptual schemes (cf. Hedberg 1981).

Planning is usually regarded as prospective thinking, which anticipates future actions (cf. e.g. Mellerowicz 1959, p. 158; Kosiol 1965, p. 389; Kirsch 1975, p. 22 and Bleicher 1989), p.119). It can thus be seen as “a process by which managers discover where they are, where they want to go, how they believe they might get there, if they are getting there, and, as they proceed, if they still want to get there.” (Galer/Heijden 1992, p.7). In order to do this efficiently and effectively, planning must take the company’s complexity into account as well as its relevant environment. It does so – among other ways – by forming different levels of planning. The literature on this subject distinguishes between strategic (or long-range) planning and operative (or short-term) planning. Often, but not always, another level is formed: a tactical (or medium-term) level (cf. e.g. Hahn 1993 and Weber 1999). According to Gälweiler, strategic planning consists of recognizing and establishing performance and capability potentials, while operative planning is directed towards success itself (cf. Gälweiler 1990, pp. 23). Strategic planning influences the contexts of business activities or creates these in the first place, whereas operative planning has to proceed from largely existing contexts (cf. Kirsch 1990, pp. 99). Therefore, changing the internal models of the actors through learning, as well as developing a “shared internal model” or “theory of business” (cf. Mintzberg 1978; Drucker 1970) should play a central role in strategic planning. As a consequence, strategic planning has been characterized as a specific learning process (cf. De Geus 1988 and 1997; Senge 1990; Galer/Heijden 1992).

Learning in Strategic Planning and Effectiveness of Planning

The possible positive influence of a high degree of learning in strategic planning on the effectiveness of planning will now be analysed. There are two separate yardsticks:

- Effectiveness of anticipation: The starting point for strategic planning is anticipating an action. The results of this process are plans (outcome-based instructions). The effectiveness of anticipation indicates whether planning is pointing in the right direction.
- Effectiveness of implementation: In order to put strategic plans into practice, they have to be co-ordinated and communicated to executives in an appropriate way. Here, implementation refers to all such measures within the context of the strategic planning process. The effectiveness of implementation describes to which extent objectives, which were anticipated during the planning process, are actually realized.

The efficiency of planning as a measure of quality is not examined in this paper; considering the low cost of planning in companies, this seems justified. In a benchmarking case study, planning and planning-related personnel costs represented only 0.03 – 0.12 percent of turnover (cf. Weber/Weißenberger/Aust 1998). Furthermore, the effect of planning efficiency on business unit performance was not significant in this study. In order to limit the complexity of the causal model, the efficiency of planning was therefore not taken into account.

Learning processes result in a better understanding of the underlying business systems for the actors who participate in the planning process. It is to be expected that the effectiveness of strategic planning increases as a consequence. However, there is little empirical evidence to support this view. De Geus and Senge mention the success story of Shell in the 1970s and 1980s. They link back the above-average performance of Shell in a tough competitive and dynamic environment to an understanding of strategic planning as a learning process which was supported instrumentally by the scenario technique: “At Shell, planning means changing minds, not making plans” (De Geus 1988, S.70). De Geus and Senge conclude that long-term success depends on the process whereby management teams change their shared mental models of their company, their markets, and their competitors: “For this reason we think of planning as learning and of corporate planning as institutional learning” (De Geus 1988, p. 70; cf. also Senge 1990; S.188).

In the following, we will be distinguishing two effects: the positive influence of changed models on the quality of anticipation, and the support of the implementation as a consequence of the stronger anchoring of planning in the internal models of the actors. The following hypotheses can thus be made:

H 1: Learning in strategic planning has a positive impact on the effectiveness of anticipation.

H 2: Learning in strategic planning has a positive impact on the effectiveness of implementation.

Effectiveness of planning and performance

In the literature, there are numerous contributions that consider the relationship between existing long-range or strategic planning processes and company performance. Thune/House published the first empirical study of this kind in 1970. This study examined 36 companies in six different industry sectors. For each industry sector, companies with systematic planning processes and those without were compared according to five performance measures. The results showed that the companies that had systematic planning systems came off considerably better on average (cf. Thune/House 1970). Following this, many other papers conducted similar analyses. Some confirmed the results of the Thune/House study (cf. e.g. Ansoff et al. 1970; Herold 1972; Karger/Malik 1975; Wood/LaForge 1979; Van de Ven 1980; Sapp/Seiler 1981; Welch 1984; Ackelsberg/Arlow 1985; Rhyne 1986; Breacker/Pearson 1986; Pearce/Robbins/Robinson 1987; Odom/Boxx 1988). Others came to the conclusion that there was no significantly positive relationship (cf. Fulmer/Rue 1974; Grinyer/Norburn 1975; Klein 1979; Kudla 1980; Kallman/Shapiro 1978; Leontiades/Tezel 1980; Whitehead/Gup 1985). There is no consistent picture, neither in the overall view nor in the results of existing meta-studies (cf. e.g. Boyd 1991).

These findings are only partly surprising. On the one hand, it is to be expected that, depending on context factors, planning more or less contributes to company or business unit performance (cf. Pennington 1972; Saunders/Tuggle 1977; Paine/Anderson 1977; Hambrick 1981; Armstrong 1982; Jenner 2001). On the other hand, it can be assumed that planning organization and its value or quality have a significant influence on planning's contribution to company performance. Such considerations and findings are first described by Burt. In a study of planning processes in Australian companies, Burt shows a significant relationship between quality of planning and company performance (cf. Burt 1978). Our paper, too, follows this particular train of thought. The effectiveness of anticipation and implementation as relevant yardsticks, which have already been identified, should have a positive impact on the adaptiveness of the business unit. If a unit is – based on learning in strategic planning and other relevant parameters – able to design planning in such a way that it indicates the right direction and that the anticipated goals are achieved, it should be able to implement

adaptations to novel market conditions adequately and rapidly. The following hypotheses can be made:

H 3: Effectiveness of anticipation has a positive impact on adaptiveness.

H 4: Effectiveness of implementation has a positive impact on adaptiveness.

Schreyögg/Steinmann note that the potential strategic advantage of quick responses to environmental turbulence needs to be weighed with the risk of maladaptions (cf. Schreyögg/Steinmann 1985). If the benefits of increased adaptiveness outweigh the costs, adaptiveness should positively influence the performance of the business unit. To measure performance we differentiate between a perceptual assessment of market performance and the perceptual assessment of the return on sales relative to industry average. The assumption that benefits should usually outweigh costs leads to the following hypotheses:

H 5: Adaptiveness has a positive impact on market performance.

H 6: Adaptiveness has a positive impact on return on sales.

H 7: Market performance has a positive impact on return on sales.

Determinants of Learning in Strategic Planning Processes

After the hypotheses concerning the relationship between the effectiveness of planning and the performance of the business unit have been formulated, supplementary hypotheses regarding the relationships between selected internal context or design factors and learning in the framework of strategic planning are now proposed. First, the relationship with internal dynamism and complexity is analyzed.

In organizational learning literature, a relationship between uncertainty and learning is often proposed (cf. Hedberg 1981, Fiol/Lyles 1985; Daft/Lengel 1986 and Dodgson 1993). According to Daft/Lengel, organizations that face high uncertainty have to ask a large number of questions and to acquire more information to learn the answers (cf. Daft/Lengel 1986, p. 556). Since learning is a method for acquiring information, uncertainty provides a motivation to learn. A couple of authors postulate a u-shaped relationship between uncertainty and learning:

- Hedberg argues that on the one hand, very simple environments and environments that change very slowly are eventually explored, and permit organizations to use many standard operating procedures. Such environments offer few challenges to learners. On the other hand, environments that are highly complex, or that change very rapidly,

overload organizations' information-processing capacity and limit the level of integrative complexity in individual's mental maps (Hedberg 1981).

- According to research on individual learning done by Schroder/Driver/Streifert, individual's cognitive maps develop from simplicity and low integration to high integrative complexity. They lose complexity, however, when environmental complexity becomes too big (cf. Schroder/Driver/Streifert 1967, p. 168).
- Fiol/Lyles argue that much stability within an organization can be dysfunctional (there is little inducement to learn and/or change if established behaviors never grow obsolete), and too much dynamism makes it difficult for learners to map their environment (cf. Fiol/Lyles 1985, p. 805; see also Lawrence/Dyer 1983 and March/Olsen 1975).

In the context of this study, the relationship between the *internal* dynamism resp. complexity of the company and learning in the framework of strategic planning is analyzed. These variables are – in contrast to dynamism and complexity as related to the environment – highly susceptible to influence by management. For this reason, it is assumed in the following that the internal dynamism and complexity of the company are so pronounced that a general information (or other) overload of the actors in the context of learning processes can be excluded. Higher internal complexity and dynamism therefore induce a need for more information (cf. Galbraith 1973; Daft/Lengel 1986; Menon/Venarajan 1992) and therefore a stronger need for learning processes. If management acts rationally, the degree of learning in strategic planning processes should increase correspondingly. This gives us the following hypotheses:

H 8: Internal dynamism has a positive impact on learning in strategic planning.

H 9: Internal complexity has a positive impact on learning in strategic planning.

Collective learning by actors who act autonomously to a lesser or greater degree is only possible if all members have a subjective feeling of sufficient safety. This subjective safety can be created by trust. Numerous studies emphasize the importance of trust for the cooperation of actors (cf. p.ex. Grewal/Comer/Mehta 1999; Joshi/Stump 1999; Swan/Bowers/Richardson 1999; Pieper 2000). Game theory, as well, has long focused on the central role of trust. Actors who mistrust each other do not communicate openly, but rather hold back data or communicate inaccurately (cf. Mellinger 1956; Gibb 1964; Zand 1972; Pearce 1974). Finally, trust also enables non-conformist behavior. The theory of so-called “idiosyncrasy credits”, developed by Hollander, assumes that any actor can create a foundation of trust by “clustering

positive impressions“. Based on the trust the actor has gained in advance, he receives a behavior credit that is called “idiosyncrasy credit”; it determines to which degree behavior that deviates from the norm is tolerated. This credit is what makes it possible to influence the norms and behavior of the actors in the context of strategic planning and to counteract groupthink without risking sanctions (cf. Hollander 1972). High levels of trust are therefore expected to have a positive influence on learning (cf. Galer/Heijden 1992; March/Olsen 1976). The following hypothesis results:

H 10: A culture of trust has a positive impact on learning in strategic planning.

If one increases the intensity of strategic planning, the probability that planning contexts and the fundamental business model are understood and are internalized is enhanced. Further, managers (too) have limited capacities: management’s time and attention are limited resources which are only devoted to topics which are seen as being important or at least relevant (cf. Bleicher 1986; Simons 1995). If one interprets the intensity of planning as a credible signal for the importance which it is given in the company, it is to be expected that the energy the actors invest in the learning process increases in accordance with the planning intensity. This leads to the following hypothesis:

H 11: Intensity of strategic planning has a positive impact on learning in strategic planning.

Formalization is the degree to which rules, policies and procedures govern an organization (cf. Van de Ven 1976, Gupta/Raj/Wilemon 1986). A high degree of formalization of strategic planning expresses itself in pre-defined “planning calendars” or “planning maps”, in which the type and content of the planning components and the corresponding deadlines are defined in detail. This requires a previously existing model and reduces degrees of liberty, which are necessary for learning processes. Prescriptions and rules which are too detailed limit the employee’s set of action so that creativity and individual learning are reduced (cf. Burns/Stalker 1961); Low formalization, however, permits openness, which encourages new ideas and behaviors (cf. Shepard 1967 and Pierce/Delbecq 1977). The negative impact of high formalization is confirmed by empirical studies (cf. Damanpour 1991 and Nagl 1997).

As a rule, there are considerable knowledge limitations in strategic planning as the contexts of the company's actions are yet to be influenced or even created. Also, it is generally not known in detail which personnel and which information are required for planning. Correspondingly, some authors conclude that a very high level of formalization impedes learning in strategic planning (cf. Braybrooke/Lindblom 1963; Mintzberg 1978; Bresser/Bishop 1983). Mintzberg/Brunet/Waters argue that formal planning and the associated forces that encourage it may discourage the very mental state required to conceive strategic learning: "The more the organization relied on detailed, systematic, routine specification of its existing procedures, the less its people were encouraged to think beyond those procedures to new orientations...In essence, then, planning meant the programming of a given orientation, and that focused attention on elements of what was, rather than on images of what could be." (Mintzberg/Brunet/Waters 1980, cf. also Mintzberg/Waters 1982). This leads to the following hypothesis:

H 12: Formalization of strategic planning has a negative impact on learning in strategic planning.

In practice, strategic planning is often determined extensively by central planning departments. The staff of such departments, however, tends to have an insufficient understanding of the operative business of the decentralized business units. As a rule, they spend only a few days per year in the decentralized units (cf. Weber/Goedel/Schäffer 1997). In this way, no understanding for the rules and demands of the individual markets is generated. When decentralized planning units participate in strategic planning, they can contribute their detailed and extensive knowledge of customers, competitors, and internal processes (cf. Senge 1990, S.288): "Planning at the subsystem level is critical because this is the level at which systems of cause and effect can actually be observed" (Slater/Narver 1995, p.71). In addition, decentralisation increases the motivation to learn: "People learn most rapidly when they have a genuine sense of responsibility for actions. Helplessness, the belief that we cannot influence the circumstances under which we live, undermines the incentive to learn, as does the belief that someone somewhere else dictates our learning matters. This is why learning organizations will, increasingly, be 'localized' organizations, extending the maximum degree of authority and power as far from the 'top' or corporate center as possible" (Senge 1990, p.287). These insights correspond with the findings in the literature regarding the general relationship between decentralizing and learning. According to Galbraith, Duncan and Fiol/Lyles, a decentralized structure tends to facilitate information acquisition and to

allow shifts of beliefs and actions (cf. Galbraith 1973; Duncan 1974; Fiol/Lyles 1985). Also, empirical studies have given evidence of a positive relationship between decentralization and learning (cf. Damanpour 1991, Nagl 1997). This leads to the following hypothesis:

H 13: Decentralization of strategic planning has a positive impact on learning in strategic planning.

METHOD

Sample and Data collection

To examine the contribution of planning processes to business performance, a survey was conducted from July to September 2000 among 4186 business units of German companies. A written survey in the form of a standardized questionnaire was chosen as the way that the data was to be collected. Our choice of the SBU as our unit of analysis was driven by conceptual considerations and our review of previous research on planning. Controllers were chosen as the contacts in the companies, due to the role they play in practice regarding the organization of planning processes. As numerous empirical studies have confirmed, in German speaking countries they play a decisive role in organizing and co-ordinating these processes (cf. e.g. Amshoff 1993, Niedermayr 1994). It is important to note, however, that the planning related task bundle of Anglo-Saxon management accountants tends to be more restricted (For an empirical comparison of controller tasks in Germany, France and the United States see Stoffel 1995, in particular pp. 155- 195). As a form of a preliminary test, the questionnaire was examined for comprehensibility and completeness.

The source material was provided by the Hoppenstedt publishing house as well as the Chamber for Industry and Commerce in Koblenz. To identify the contacts, the companies were consulted via telephone. The survey led to an effective sample of 298 questionnaires, which corresponds to a response rate of 7.1%. Considering the length of the questionnaire, this response rate can be regarded as satisfactory (cf. Greer/Chuchinprakarn 1999, pp.76).

In order to assure that there is no distortion due to non-responses, an approximative two-sample-Gauß-test was undertaken to compare the answers of those managers who returned the questionnaire quickly to those who participated in the study only later, assuming that late responses are most similar to non-respondents (cf. Armstrong/Overton 1977). For this comparison, business units who responded within the first 8 days were juxtaposed to those

participants who send back the questionnaire after 14 days and more. However, no significant difference between early and late participants were found. Thus, we assume that no response bias exists in this study. In addition, we took account of the suitability and competence of our contacts by checking on their planning related experience. It turned out that 72 % of the participants have been involved in planning for more than five years. Thus, a high data quality is expected.

Measurement

Learning, its determinants as well as its benefits for the effectiveness of planning and business unit performance are measured by multidimensional constructs.

Contingency factors include internal dynamism and complexity as well as the culture of mutual trust. The construct of internal dynamism is conceptualized as the importance of major internal changes (cf. Child 1972; Duncan 1972). The construct is based on various dimensions including products, value chain, technology, quality, price and type of inputs as well as business processes.

Internal complexity refers to the variety and heterogeneity of elements in a firm's internal environments which have to be considered in strategic decision-making (cf. Kieser 1974, p. 302; Keats/Hitt 1988; Aldrich 1979; Dess/Beard 1984). In this study, complexity is measured by variety and heterogeneity of products and services, raw materials and business processes.

Concerning the construct "culture of mutual trust", a review of contemporary writings on 'organizational culture' reveals three interrelated concepts in use (cf. Allaire/Firsirotu 1984):

- A sociostructural system composed of perceived functioning of formal structures, strategies, policies and management processes.
- A cultural system that embodies the organization's myths, values and ideology.
- And the individual actors, with their particular endowments, experience, and personality.

In this research, we consider culture, in accordance with Swartz/Jordon 1980, to be shared values (what is important) and beliefs (how things work) that interact with an organization's structures and control systems to produce behavioral norms (the way we do things around here) (cf. Becker/Geer 1970; Kroeber/Kluckhohn 1952; Ouchi 1981; van Maanen/Schein

1979). Based on Reynold's scale of cooperation (Reynolds 1986, p. 336) we develop a scale which measures culture of trust. First addressed in sociology and psychology, trust is viewed within interpersonal relations (cf. Deutsch 1958; Larzelere/Huston 1980; Zucker 1987) and thus defined as a general expectancy held by an individual that the word of another can be relied on (cf. Rotter 1967, p. 651). Transferred and recognized in the context of organizational culture we measure trust with four items which are cited in the appendix.

Like the contingency factors, the design parameters of the strategic planning process are supposed to influence learning, namely the intensity, formalization and decentralization are measured by multidimensional constructs.

Intensity of planning describes the amount of effort in the process of planning (cf. Jenner 2001, p. 110). Planning intensity is operationalized by the amount of information generated and the intensity of analyzing and evaluating the information (cf. Miller/Friesen 1978; Eisenhardt 1990). The construct is measured using six items which are cited in the appendix.

Formalization of strategic planning refers to the extent to which rules, procedures, instructions, and communications are written and standardized, and the degree to which roles are clearly defined (cf. Pugh et al. 1968). Based on the scales of Inkson et al. 1970; Ruekert/Walker 1987, Pearce/Robbins/Robinson 1987 and Menon et al. 1999, we measure formalization by the extent of rules, guidelines and standardization of processes as well as the degree of documentation of the decision-making process.

Decentralization of strategic planning refers to the extent of decision-making authority concentrated at the lower levels of an organization (cf. Dewar/Werbel 1979). It involves the distribution of power (cf. Miller/Dröge/Toulouse 1988, p. 555) and is high if the top executives alone make most of the decision with a minimum of consultation, low if middle managers determine strategies by the default or intent of top executives (cf. Miller/Friesen 1980, p. 291). Based on the scales of Hage/Aiken 1967, Inkson et al. 1970, and Menon et al. 1999, we measure the extent to which authority is concentrated at middle management and to which knowledge of middle management is integrated in the process of planning process and authority. The items are cited in the appendix.

Concerning the main construct of learning within the process of strategic planning, surprisingly few authors contributed to a conceptualization and operationalization. All of

them, namely Huber 1991, Dixon 1992, and Hult/Ferrell 1997, developed a construct of organizational learning based on the process phases of organizational learning. We transferred the construct of organizational learning into the planning concept and developed a new scale based on the measurement of Menon et al. 1999 that focuses on development of skills, improvement in understanding, and likelihood of changes of mind.

Like the construct of learning within the process of strategic planning, the effectiveness of planning has been conceptualized only in fragmented form. In Burt's study, which is the only study analyzing the effectiveness or quality of planning, the operationalization of the quality of planning is based on 25 open questions, which remain unknown to the reader. Hence, drawing from a variety of sources (c.f. e.g. Bourgeois/Eisenhardt 1988; Dyson/Foster 1980; Fredrickson 1984; John/John 1984; Ramanujam/Bekatraman/Camillus 1986; Schwenk 1990, Menon/Howell 1996), we distinguished effectiveness of anticipation and implementation and developed a scale to capture these constructs.

Finally, the conceptualization of performance is discussed. Although the importance of the performance concept is widely recognized (cf. Steers 1975; Campbell 1977; Kirchhoff 1977; Connolly/Conlon/Deutsch 1980; Yuchtman/Seashore 1967), its conceptualisation in research settings is one of the thorniest issues confronting the academic researcher (cf. Connolly/Conlon/Deutsch 1980, p. 211). The narrowest conception centers on the use of simple outcome-based financial indicators that are assumed to reflect the fulfillment of the economic objectives of the company. Typically, indicators such as sales growth, return on investment, return on sales and return on equity are chosen (cf. Thune/House 1970; Ansoff et al. 1970; Herold 1972; Fulmer/Rue 1974; Karger/Malik 1975; Burt 1978; Kallman/Shapiro 1978; Wood/LaForge 1979). In addition, reflecting the popular view that market or value-based measurements are more appropriate than accounting-based measures (cf. Chakravarthy 1986, p. 445), some studies have employed measures like market-to-book-value or stock-market returns (cf. Kudla 1976; Leontiades/Tezel 1980; Welch 1984; Whitehead/Gup 1985). A broader conceptualization of business performance also includes emphasis on indicators of operational performance such as market-share, new product introduction, product quality, manufacturing value-added and other measures of technological efficiency within the domain of business performance (cf. Venkatraman/Ramanujam 1986, p. 804).

In the following, the performance construct is measured at the SBU level. Based on the conceptualization of Ruckert/Walker/Roering 1985 three dimensions are considered: adaptiveness, market performance, and return on sales compared to industry average. Adaptiveness reflects the ability of the organization to adapt to changes in its environment, market performance involves the degree to which non financial goals are reached, and return on sales considers the relationship between financial outputs and the inputs required to reach those outputs (Ruckert/Walker/Roering 1985, p. 15). To provide an appropriate frame of reference, respondents were asked to rate their business unit's return on sales in relation to that of competitors. The comparison to other similar firms provides a form of control for differences in performance that may be due to industry and strategic group effects (cf. Dess/Ireland/Hitt 1990 and Hatten/Schendel/Cooper 1978). All three dimensions are subjective assessments of business unit controllers. Therefore, biased responses cannot be excluded. However, subjective self-reported performance measures have been found to be highly correlated with objectives measures of company or business unit performance (cf. Dess/Robinson 1984 and Robinson/Pearce 1988).

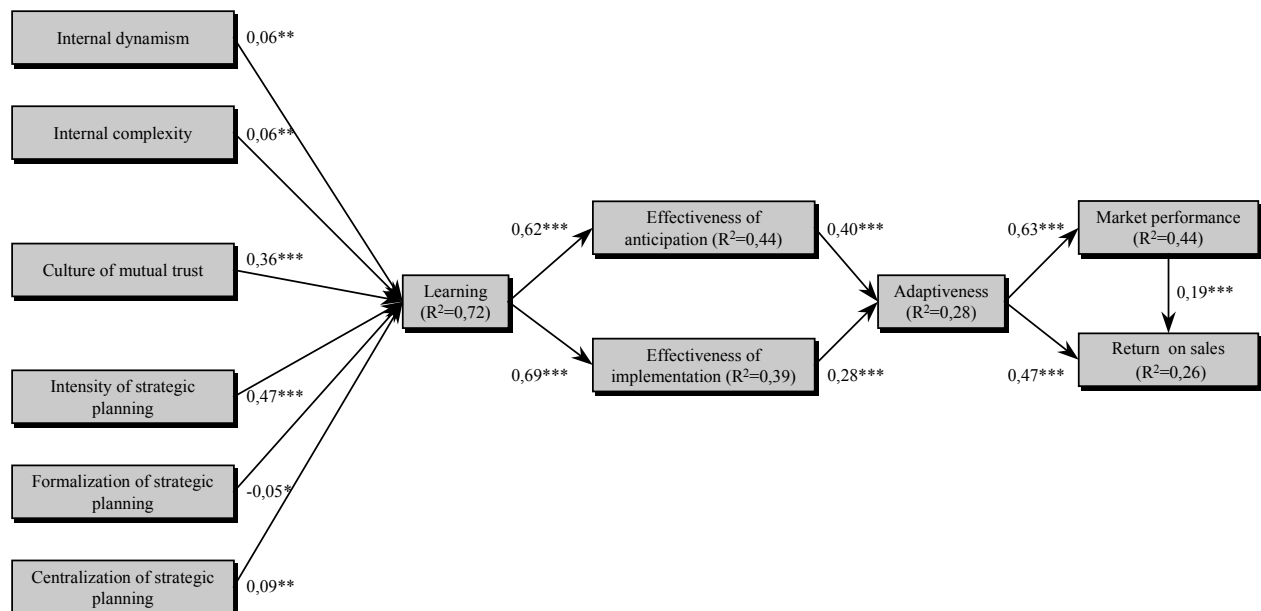
All items are shown in the appendix. To evaluate the quality of the measuring scale, reliability and validity were examined. Reliability describes the formal accuracy of the recording. A measuring tool is reliable if the measurement is free of random errors (cf. Peter 1979, p. 6; Kinnear/Taylor 1991, p. 232). A reliable measurement is a precondition for the validity of the scale (cf. Carmines/Zeller 1979, p. 13 and Peter 1979, pp. 6). If there is high validity, one can assume that the measurement is correct in concept. In order to examine reliability and validity, Coefficient Alpha, indicator reliability, factor reliability as well as average variance recorded will be considered. Coefficient Alpha is one of the most widespread units of measure for examining reliability (cf. Carmines/Zeller 1979, p. 44; Peterson 1994, p. 382) and should have a minimum value of 0.7. Indicator reliability serves as measure of the contribution to the variance of an indicator, which can be attributed to the underlying factor. The scale runs from zero to one, whereby a minimum value of 0.4 is required (cf. Homburg/Baumgartner 1995, p. 170). Factor reliability and average recorded variance can establish how well a factor is measured by the indicators as a whole. Both measurements are based on confirmatory factor analysis (cf. Homburg/Giering 1996, p. 11). They each measure values from zero to one. The boundary value of factor reliability from which one can assume good model quality is generally agreed to be 0.6 (cf. Bagozzi/Yi 1988, p. 82;

Homburg/Baumgartner 1995, p. 170). Homburg/Baumgartner postulate a critical value of 0.5 for the average recorded variance (cf. Homburg/Baumgartner 1995, p. 172).

According to the above-mentioned quality criteria, the measurements of the constructs can be described as satisfactory (see also appendix A). The results of the structural equation modelling shall now follow.

RESULTS

For hypotheses testing structural equation modeling is used. The model estimates 131 parameters based on 52 indicator variables and is thus identified ($131 \leq \frac{1}{2} * 52 * 53 = 1378$). The values of the global adaptation measurements far exceed the minimum required, thus indicating that there is a very good adaptation of the model ($\chi^2/df = 1619.89/1247 = 1.30$; RMSEA = 0.033; GFI = 0.95; AGFI = 0.94; CFI = 0.98). Similarly, the values of the squared multiple correlation are satisfactory. The results will now be presented and discussed, based on the positive assessment of the model quality.



Key:

Significance level of standardized coefficients

(One-tailed test)	*	10%	(t-value $\geq 1,282$)
	**	5%	(t-value $\geq 1,645$)
	***	1%	(t-value $\geq 2,326$)

Explained variance R²

Exhibit: Impact of learning in strategic planning on the effectiveness of planning and business unit performance

As stated in hypothesis 1, a high degree of learning in strategic planning has a positive impact on the effectiveness of anticipation. Here, learning accounts for 44% of this yardstick. The effectiveness of implementation is positively influenced by learning, as stated in hypothesis 2. It explains 39% of the construct. In order to assure that these central results can be generalized, size effects were checked using a moderated regression analysis. On the basis of a median split, the database was divided in two. The dependencies for each of the two partial databases were specified and tested. A t-test was then used to determine whether the regression coefficients which were calculated for the two partial databases differed significantly. This was not the case (see also appendix B). Correspondingly, the results can be generalized across different sizes of business units. This result confirms the findings of Fredrickson (1984) and Priem (1992) who also found no significant effects of size on strategy making.

Furthermore, it can be shown that the effectiveness of anticipation and the effectiveness of implementation have a positive impact on the adaptiveness of the business unit, as stated in hypotheses 3 and 4. Together they account for 28% of the construct. Adaptiveness has a positive impact on market performance and explains 44% of the construct, thus confirming hypothesis 5. Adaptiveness and market performance both have a positive impact on return of sales, as stated in hypotheses 6 and 7. Together they account for 26% of return of sales compared to industry average.

A culture of trust and the intensity of strategic planning have a positive impact on learning, i.e. they are significant on the 1 percent level. Internal dynamics, internal complexity and decentralization have a positive impact on learning as well. However, the influences are comparatively low and significant on the 5 percent level. Formalization of strategic planning has a negative relationship with learning, which is, however, only significant on the 10% level. Thus, hypotheses 8 – 13 are confirmed. Together, the variables mentioned above account for 72% of learning.

CONCLUSION AND DISCUSSION

The objective of this paper was to examine empirically the relationship between learning in strategic planning, the effectiveness of planning, and business unit performance in German companies. In the end result, it was possible for the first time to show that learning in the process of strategic planning leads to increased effectiveness of anticipation and implementation. It should be emphasized that neither of the two positive effects clearly predominates, i.e. the positive effect of learning on implementing the strategic planning is not significantly lesser than its impact on the goodness of anticipation. Both variables have a significant positive impact on the adaptiveness of the unit and – indirectly – on market performance and return on sales. It is therefore worthwhile to design strategic planning as a learning process.

From these empirical findings we derive the recommendation to practice to design strategic planning in a way that cultivates learning processes. Unfortunately, in the literature hardly any empirical evidence has been available in this regard. We show that learning is positively influenced by internal contextual and design factors such as internal dynamism, internal complexity, a culture of trust, intensity of strategic planning and decentralization. A relatively weaker influence of decentralization and the selected context factors on learning in strategic planning was found. The greatest influence is exerted by having a culture of trust and by the intensity of strategic planning. Intensive planning efforts in an environment that is characterized by trust contribute significantly to the desired learning effects. This shows, on the one hand, that trust makes sense economically in the context of strategic planning process. On the other hand, it indicates a need for practice to think about ways to intensify the process – particularly considering the relatively low intensity of strategic planning in German companies.

Formalization of strategic planning has only a very small negative effect on learning in the context of this process. The view – as expounded by Mintzberg and his associates in particular – that the formalization of planning processes counteracts rather than supports learning and strategic thinking is not confirmed as clearly by our study as we had expected. Further analyse are needed to find out more about possible contingency factors and moderating effects between the two variables involved.

In addition to this point, there are some more challenges for future research, which arise partially from the limitations of this paper. First, the paper is restricted to German companies. This appeared to be a logical first step, considering possible culture-specific differences and the absence of comparable studies in the past. In future, there should be studies that compare Germany to other countries, particularly in Anglo-Saxon regions, which have a significant impact on German management. Secondly, only controllers were questioned. It is to be expected that their views may differ from those of management on the planning process in general, and specifically, on learning in strategic planning and the (perceptual) assessment of the effectiveness of planning and business unit performance. Therefore, for future studies, managers should also be consulted, and dyadic surveys should be carried out (controller/manager).

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Appendix A: Information on Constructs

Information concerning indicators of the construct „Internal dynamism“			
Indicators			Indicator Reliability
How important are changes in the following dimensions?			
Changes concerning products and brands.			0,34
Changes concerning the value chain.			0,36
Changes concerning technology.			0,50
Changes concerning internal business processes.			0,43
Changes concerning inputs (price, quality, type).			0,30
Information concerning the construct „Internal dynamism“			
<u>Descriptive Assessment Criterion</u>		<u>Results of Confirmatory Factor Analysis</u>	
Coefficient Alpha (standardized)	0,74	Factor Reliability	0,76
		Average Variance Extracted	0,33
Information concerning indicators of the construct „Internal complexity“			
Indicators			Indicator Reliability
We produce a huge variety of products and services.			
Our products and services are very different.			0,43
We use plenty of different raw materials.			0,36
The raw materials that we use in our production, are very different.			0,67
There are plenty of business processes.			0,67
Our business processes are very different.			0,60
			0,50
Information concerning the construct „Internal complexity“			
<u>Descriptive Assessment Criterion</u>		<u>Results of Confirmatory Factor Analysis</u>	
Coefficient Alpha (standardized)	0,85	Factor Reliability	0,87
		Average Variance Extracted	0,54
Information concerning indicators of the construct „Culture of mutual trust“			
Indicators			Indicator Reliability
For us mutual trust is very important.			
In our company mutual mistrust and suspicion is very common.			0,58
Important information and relationships are openly shared.			0,52
Managers who work together trust each other.			0,61
			0,77
Information concerning the construct „Culture of mutual trust“			
<u>Descriptive Assessment Criterion</u>		<u>Results of Confirmatory Factor Analysis</u>	
Coefficient Alpha (standardized)	0,85	Factor Reliability	0,87
		Average Variance Extracted	0,62

Information concerning indicators of the construct „Intensity of strategic planning“			
Indicators			Indicator Reliability
Everything that have to be planned is studied carefully during the process of strategic planning.			0,74
During the process of strategic planning we analyze the relevant aspects very carefully.			0,71
During the process of strategic planning many alternatives are evaluated carefully.			0,66
Those who are involved in strategic planning analyze and evaluated projects carefully.			0,71
Strategic planning is a very demanding process.			0,65
Those who are involved in strategic planning spare no effort.			0,68
Information concerning the construct „Intensity of strategic planning“			
<u>Descriptive Assessment Criterion</u>		<u>Results of Confirmatory Factor Analysis</u>	
Coefficient Alpha (standardized)	0,92	Factor Reliability	0,93
		Average Variance Extracted	0,69

Information concerning indicators of the construct „Formalization of strategic planning“			
Indicators			Indicator Reliability
The process of strategic planning is documented in detail in planning manuals.			0,39
In strategic planning there is a formula for everything.			0,69
In strategic planning there are a lot of guidelines on content, scope and shape of planning reports.			0,78
The process of strategic planning is very standardized at our company.			0,72
Information concerning the construct „Formalization of strategic planning“			
<u>Descriptive Assessment Criterion</u>		<u>Results of Confirmatory Factor Analysis</u>	
Coefficient Alpha (standardized)		Factor Reliability	0,88
		Average Variance Extracted	0,65

Information concerning indicators of the construct „Decentralization of strategic planning“			
Indicators			Indicator Reliability
At our company ideas are transported and integrated in the process of strategic planning all over the hierarchy.			0,53
Knowledge at the business unit level is used and integrated in the process of strategic planning at the corporate level.			0,63
In the process of strategic planning information are shared all over the hierarchy.			0,68
The business unit bring in their know-how in the process of strategic planning.			0,75
Information concerning the construct „Decentralization of strategic planning“			
<u>Descriptive Assessment Criterion</u>		<u>Results of Confirmatory Factor Analysis</u>	
Coefficient Alpha (standardized)	0,85	Factor Reliability	0,88
		Average Variance Extracted	0,65

Information concerning indicators of the construct „Learning within the process of strategic planning“			
Indicators			Indicator Reliability
Strategic planning at our company is a process of learning.			0,58
In the process of strategic planning I get a better understanding of performance and price of our suppliers.			0,36
In the process of strategic planning I get an overview and understanding of our internal processes.			0,35
In the process of strategic planning we think over the way of how we do the business.			0,54
Information concerning the construct „Learning within the process of strategic planning“			
<u>Descriptive Assessment Criterion</u>		<u>Results of Confirmatory Factor Analysis</u>	
Coefficient Alpha (standardized)	0,75	Factor Reliability	0,77
		Average Variance Extracted	0,45

Information concerning indicators of the construct „Effectiveness of anticipation“			
Indicators			Indicator Reliability
Planning shows us the right path for the future.			0,36
If we achieve the objectives set during planning, we can strengthen our market position.			0,70
Measures adopted during planning make us competitive.			0,68
Measures adopted during planning help us to meet profitability specifications.			0,59
If we achieve the goals set during planning, we are satisfied with our operative result.			0,41
Planning helps us maximize the shareholder value.			0,45
Information concerning the construct „Effectiveness of anticipation“			
<u>Descriptive Assessment Criterion</u>		<u>Results of Confirmatory Factor Analysis</u>	
Coefficient Alpha (standardized)	0,85	Factor Reliability	0,87
		Average Variance Extracted	0,53
Information concerning indicators of the construct “Effectiveness of implementation”			
Indicators			Indicator Reliability
I think that planning usually anticipates the future result quite well.			0,62
Deviations between desired and actual values are usually quite small.			0,62
In my opinion, our planning is realistic.			0,80
Our planning is in my opinion never quite accurate.			0,53
Information concerning the construct „Effectiveness of implementation”			
<u>Descriptive Assessment Criterion</u>		<u>Results of Confirmatory Factor Analysis</u>	
Coefficient Alpha (standardized)	0,85	Factor Reliability	0,88
		Average Variance Extracted	0,64

Information concerning indicators of the construct „Market performance“			
Indicators			Indicator reliability
Achievement of target growth.			0,66
Securing target market share.			0,71
Retaining present clients.			0,47
Gaining new clients.			0,48
Information concerning the construct “Market performance“			
<u>Descriptive Assessment Criterion</u>		<u>Results of Confirmatory Factor Analysis</u>	
Coefficient Alpha (standardized)	0,82	Factor Reliability	0,85
		Average Variance Extracted	0,58
Information concerning indicators of the construct „Adaptiveness“			
Indicators			Indicator reliability
Adapting to a competitor’s change to its market strategy.			0,47
Rapid adaptation of products to changes in clients’ needs.			0,53
Rapid reaction to new threats to the market.			0,91
Rapid exploitation of new market opportunities.			0,55
Information concerning the construct „Adaptiveness“			
<u>Descriptive Assessment Criterion</u>		<u>Results of Confirmatory Factor Analysis</u>	
Coefficient Alpha (standardized)	0,84	Factor Reliability	0,86
		Average Variance Extracted	0,62
Information concerning indicators of the construct „Return on sales“			

Indicators	Indicator reliability
Average percentage return on sales of the business unit compared to the industry average.	1,00

Appendix B: Moderating Effects of Size

a) Effectiveness of Anticipation

When Size \leq 350 (n=154)	R2	F-Wert	Beta	Standard error	Standardized Beta
Learning	0,172	29,989***	0,323	0,059	0,415***

When Size $>$ 350 (n=143)	R2	F-Wert	Beta	Standard error	Standardized Beta
Learning	0,163	26,177***	0,345	0,068	0,404***

$$t = \frac{B_{21} - B_{11}}{SE_{B_{21}-B_{11}}} = \frac{B_{21} - B_{11}}{\sqrt{(SE_{B_{21}}^2 + SE_{B_{11}}^2)}} = \frac{0,323 - 0,345}{\sqrt{(0,059^2 + 0,068^2)}} = -0,244 (< -1,972)$$

a) Effectiveness of Implementation

When Size \leq 350 (n=154)	R2	F-Wert	Beta	Standard error	Standardized Beta
Learning	0,114	18,472***	0,295	0,069	0,337***

When Size $>$ 350 (n=143)	R2	F-Wert	Beta	Standard error	Standardized Beta
Learning	0,005	7,043***	0,213	0,080	0,223***

$$t = \frac{B_{21} - B_{11}}{SE_{B_{21}-B_{11}}} = \frac{B_{21} - B_{11}}{\sqrt{(SE_{B_{21}}^2 + SE_{B_{11}}^2)}} = \frac{0,295 - 0,213}{\sqrt{(0,069^2 + 0,080^2)}} = 0,776 (< -1,972)$$