

Analysis of Buying Center Decisions Through the Salesforce

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Abstract

Group buying decisions are key to the marketing discipline. Especially in industrial goods markets they appear to be of high importance because organizations differ from individuals and usually make their decisions in so-called buying centers. Thus, it is important that marketing research analyzes not only the buying behavior of firm's representatives but also group decision making in particular. Against this background, several models have been developed that aim at analyzing group decision processes. Most of these models assume a two-step decision-making process. In the first step, participants in the group decision form individual preferences, whereas in the second step the group decision can be derived by measuring the participants' influences on the decision outcome.

Accordingly, researchers in marketing concentrate on developing new measuring models or improving existing ones. However, up to now one has disregarded an even more fundamental problem in measuring group decisions: In contrast to consumer surveys, one has to consider certain data collection problems when interviewing buying centers and their members. These problems derive from the complex data input necessary to portray group decision-making. In principle, general data collection problems are distinguishable from special data collection problems. Consequently, the information necessary to simulate buying center decisions can only be compiled under conditions of compounded difficulty.

For this reason we focused our research activities on finding alternatives to the conventional 'customer survey' method of data collection to depict buying center decisions. In this context we show that the data collection problems can be avoided if one no longer interviews the buying center members in person but the salesmen that service them. Moreover, we emphasize that marketing research through the salesforce is characterized by high efficiency because it can be realized contemporarily while costs are expected to be low.

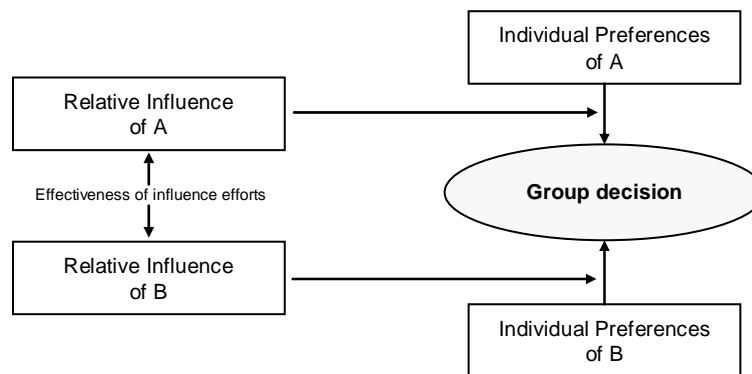
Even though one can state that data collection through the salesforce seems to be a promising and efficient way, at present no research results exist for its application in connection with an analysis of buying center decisions. Therefore, the purpose of our research is to analyze the extent to which salesmen are able to collect the required preference and influence information. As a benchmark of our analysis we have chosen prognosis quality: Group decisions that have been calculated on the basis of sales information are compared to those stated by customers. As the analysis of prognosis results is directly interrelated with the type of measurement procedure employed, the paper broadens its scope of interest to a methodological one. Particular interest is spent on the comparison of direct and indirect measurement of preferences and influences. The methods chosen for direct measurement of preferences (influences) is the self-explicated method (constant sum scale). As indirect measurement methods we selected limit conjoint analysis for both the measurement of preferences and influences, which is also known as multi-step limit conjoint-analysis.

Introduction

Group buying decisions are key to the marketing discipline. Especially in industrial goods markets they appear to be of high importance because organizations differ from individuals and usually make their decisions in so-called buying centers (Robinson et al. 1972). Thus, it is important that marketing research analyzes not only the buying behavior of firm's representatives but also group decision making in particular.

Against this background, several models have been developed that aim at explaining group decision processes (Choffray and Lilien 1978; Corfman and Lehmann 1987). Most of these models assume a two-step decision-making process. In the first step, participants in the group decision form individual preferences, whereas in the second step the group decision can be derived by measuring the participants' influences on the decision outcome; as shown in Corfman and Lehmann's (1987) model presented in figure 1. Likewise, a remarkable number of measurement models has been developed for both preferences and influences. Especially for measuring influences, market researchers can employ a wide collection of different methods (for an overview see Bueschken 1997). Especially the combination of both preference and influence information gathering is highly important as it can be assumed that group members have different degrees of influence.

FIGURE 1: SKETCH OF THE EXPLANATION MODEL OF CORFMAN AND LEHMANN 1987



The Data Collection Problem

Accordingly, researchers in marketing concentrate on developing new measuring models or improving existing ones (e.g. Bueschken 1997; Louviere and Larsen 1987; Voeth and Brinkmann 2005). However, up to now one has disregarded an even more fundamental problem in measuring group decisions: In contrast to consumer surveys, one has to consider certain data collection problems when interviewing buying centers and their members (Hague 1985, p. 21). These problems derive from the complex data input necessary to portray group decision-making. In principle, general data collection problems are separable from special data collection problems.

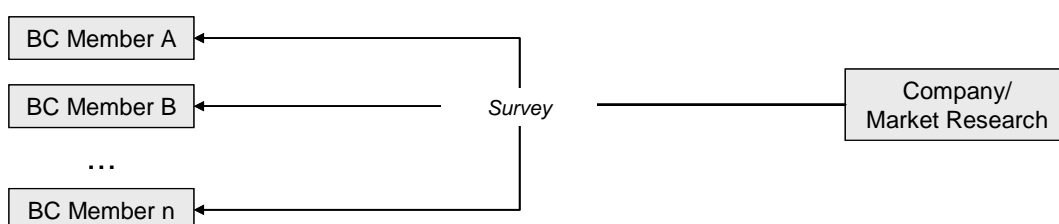
- General data collection problems arise because isolated individuals cannot be surveyed for the analysis of buying center decisions. Instead, a number of associated persons have to be interviewed. In reality, however, such a survey design would not be feasible: First of all, the structure of the buying center often cannot be determined ex-ante, thus not knowing whom to consider in the analysis. Secondly, the buying center members often are dispersed throughout the company which would lead to exaggerated costs breaching the criterion of efficiency of marketing research (Bradburn 1992; Knoke et al. 2002, p. 796). Moreover, one has to consider that industrial clients often possess little willingness to take part in surveys for two reasons. First, surveys are generally perceived as very time-consuming, which affects willingness to participate (Tomaskovic-Devey et al. 1994). Second, industrial clients often do not wish to disclose any information, fearing that it will give the interviewer too much detailed knowledge of the company's situation (Hall 1975, p. 27; Knoke et al. 2002, p. 797; Tomaskovic-Devey et al. 1995;). Apart from this, it is also possible that they respond in a consciously strategic manner, which would lead to biased data.

- While these aspects are valid in general, one has to consider further data collection problems when asking for information about influences among the buying center members. The reason for this type of problem lies in the special nature of the kind of information 'influence'. While preference represents a construct relating exclusively to one individual, influence must be seen as a construct simultaneously involving several people. Thus one person's influence in the buying center can only increase if the influence of the other buying center members decreases – vice versa. This means that the buying center members of choice must agree on sharing their influence in the buying center. Nevertheless, it cannot be presumed that this is automatically the case. Each member will expect to adopt an important position in the decision-making process. The result is an over-estimation of personal influence (Arora and Allenby 1999).

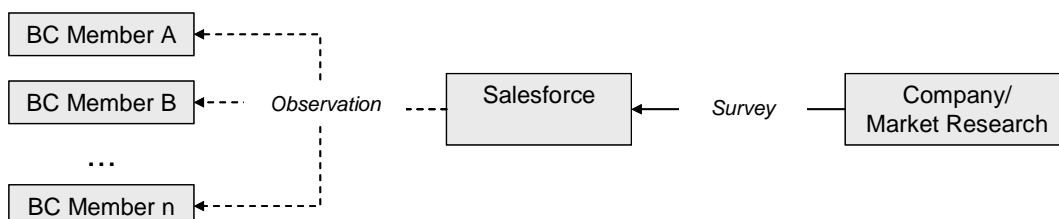
Consequently, the information necessary to simulate buying center decisions, in the quantity and quality required for analytical purposes, can only be compiled under conditions of compounded difficulty. (e. g. Block and Block 1995). Therefore alternatives to the conventional 'customer survey' method of data collection have to be found to depict multi-personal buying decisions. For example, one possibility may exist if one no longer interviews the buying center members in person but the salesmen that service them (figure 2). As internal experts, salesmen are regularly involved in their customers' decision-making processes (Block and Block 1995, p. 40; Dwyer and Tanner 2002, p. 395). Thus they play an important part in the interactions involved. Accordingly, it may be presumed that sales staff already possess the information needed for the analysis, because they need such information to sell successfully themselves (Dwyer and Tanner 2002). Hence the information already available would merely be allocated to a different use. Using salesforce information instead of interviewing customers has the advantage that, instead of interviewing several buying center members, it would be enough to ask one sales representative. Furthermore, there will probably be a positive effect on the determination of the influence values, as estimation through the salesforce would presumably be less subjective because of their impartiality. In more general terms, Webster 1965 emphasizes that marketing research through the salesforce is marked by high efficiency because it can be realized contemporarily while costs are expected to be low. In addition to that, a review of the literature clearly shows that collecting market information and providing it to the company traditionally belongs to the duties of a salesman (Grace and Pointon 1980; Moon and Mentzer 1999). Likewise Anderson et al. 1987 (already) claim that salesmen should be incorporated when determining the structure and members of the buying center.

FIGURE 2: CONVENTIONAL CUSTOMER SURVEY VS. SURVEY OF THE SALESFORCE

Conventional Customer Survey



Survey of the Salesforce



Even though data collection through the salesforce seems to be a promising and efficient way, at present no research results exist for its application in connection with an analysis of buying center decisions. Only exception are the studies of Lambert et al. 1990b that deal with the issue of how far the salesforce can be used for industrial market research purposes in general. As a benchmark of their analysis they check whether the findings of Salesforce surveys match those of customer surveys. Even though the findings of Lambert et al. 1990b show that marketing research through the Salesforce is possible in a general perspective, still this totally ignores the aspect of multi-personal involvement. Such studies do not survey either the preferences of the buying center members or the sharing of influence within the buying center. Moreover, the comparison undertaken is itself based on a major simplification. Thus salesforce and customer data are not compared separately for individual customers. Instead, averages for “typical customers” (Lambert et al. 1990b, p. 3) are used to assess how accurately the salesforce may reflect the customer's viewpoint.

Therefore, the purpose of our research is to analyze the extent to which salesmen can be used to analyze group decision making in industrial buying centers. As a benchmark of our analysis we also want to enhance prognosis quality: group decisions that have been calculated on the basis of sales information are compared to those stated by customers. Since the analysis of prognosis results is directly interrelated with the type of measurement procedure used, the paper broadens its scope of interest to a methodological one. Our main focus is the comparison of direct and indirect measurement of preferences and influences.

Selection of the Research Methods

In line with the goal of the paper, the following section aims to select specific direct and indirect measurement methods with which the information on preferences and influences can be collected.

Direct Preference Measuring – Self-Explicated Method

One of the most popular methods for direct preference measurement is the so-called self-explicated method. It is based on socio-psychological factors, which reveal an attitude to an object by cumulative compensatory linking of its affective and cognitive elements (Rosenberg 1956). Thus respondents are asked to indicate in how far different feature characteristics of an object have an either positive or negative impact on the buying decision. As a rule here, the evaluation is normally based on a rating scale. The utility values thus determined can then be condensed with the help of an integration function into overall assessments of individual objects (Pras 1978). The total utility of an alternative (U_{ci}) thus consists of the utility values from the feature characteristics which describe the object (a_{ijk}) and the levels of importance of the underlying features (w_{ij}) together (equation 1):

$$(1) \quad U_{ci} = \sum_{j \in J} \sum_{k \in K_j} w_{ij} \cdot a_{ijk} \cdot x_{jkc} \quad \text{for } i \in I \text{ and } c \in C$$

with:

U_{ci} = estimated total utility of offer c for the Individual i ,

w_{ij} = importance of feature j for the Individual i ,

a_{ijk} = utility of feature characteristic k of feature j for the Individual i ,

x_{jkc} = Dummy Variable that is 1, if feature characteristic k of feature j appears within offer c ,
in other respects 0.

Proponents of this process highlight the reduced complexity of such an approach to determine utility functions (Melles 2001, p. 16). Nevertheless, the often drastic simplifications underlying the individual process must not be disregarded. The main criticism is that this kind of utility measurement involves isolated evaluation of individual object properties. This does not correspond to the observable reality of selection processes, in which individuals assess objects wholly in the context of trade-off decision-making (Braun 2004; Teichert 2001). This may lead individuals to base their appraisals by overestimating certain features, which may yield a distorted picture of actual, observable preferences.

Indirect Preference Measuring – Limit Conjoint Analysis (Step 1)

The indirect method chosen to measure preferences was limit conjoint analysis (LCA), which as a further development of traditional conjoint analysis (TCA) rests on the basic notion of directly integrating information about choices into the conjoint analysis process (Backhaus et al. 2005; Backhaus and Voeth 2003; Voeth 1998). For this purpose within LCA interviewees are not only required to state their preferences for the stimuli, but also to say which of the presented stimuli they would still be willing to select and buy respectively (Backhaus and Voeth 2003, p. 7). Rating the stimuli on a scale, the interviewee not only has to rate the stimuli according to his or her preferences, but also to rate how far he/she considers them selectable. In image terms, the interviewee is asked to place an imaginary limit card at the point on the scale up to which he/she can conceive selecting the objects (Voeth 1998, p. 319).

To integrate the selection decision in the TCA model, a scale transformation is necessary as per equation (2). Taking the limit card as the point of zero utility, all selectable objects (classed above the limit card) receive a positive utility value. All non-selectable objects (classed below the limit card) receive a negative utility value. There is no change in the gaps between stimulus ratings (Backhaus et al. 2005, p. 546).

$$(2) \quad r_{Lki}^* = r_{ki} - L_i + 0,5$$

with

- r_{Lki}^* = limit total utility of stimulus k for the Individual i,
- r_{ki} = empirically collected rating value for stimulus k for the Individual i,
- L_i = rating value, after whom Individual i placed the Limit Card.

The limit total utility values thus obtained represent the data input for further conjoint analytical investigation. In mathematical terms, this proceeds on similar lines to the TCA, but leads to widely different results. Although both processes generate the same feature characteristics' utility values, subsequent market simulations can be used to examine whether the simulated objects are eligible for selection (Backhaus et al. 2005, p. 547). If equation (2) yields a positive (negative) total utility value for the simulated stimulus, it can be assumed that the information source has classed it above (below) the limit card. Therefore there is, in principle, willingness (unwillingness) to select the simulated stimulus.

Compared with TCA, using LCA adds content to the information. This can be of great significance to the following marketing considerations. Whereas TCA could only be used to investigate the relative preferability of individual objects, LCA yields information on selection intentions on which further considerations, such as market potential, can be based.

Direct Influence Measuring – Constant Sum Scale

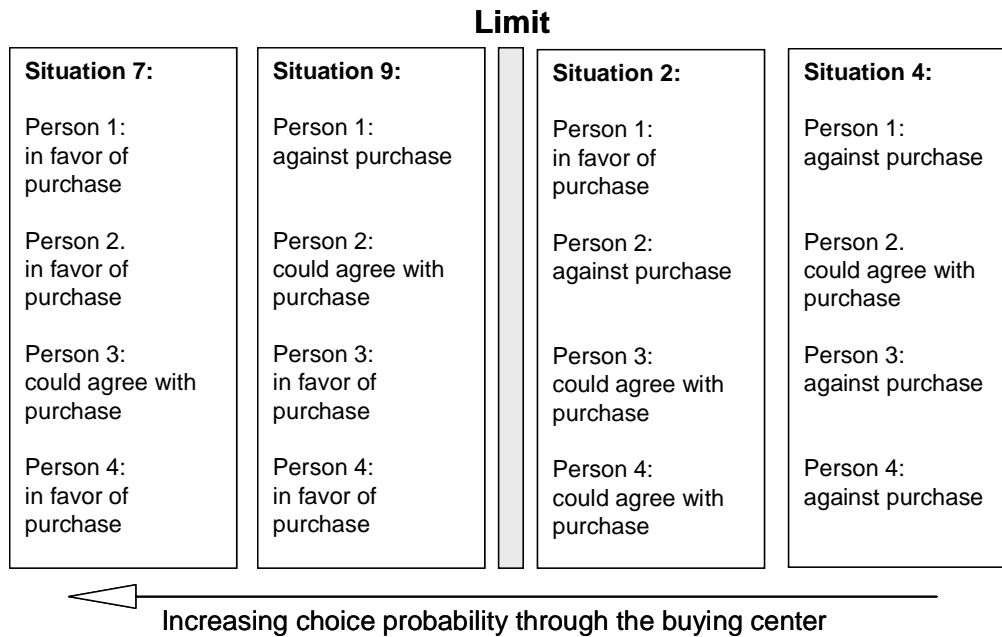
Among the numerous methods of direct measuring influence, the form of measuring influence via a constant sum scale enjoys frequent use. Here, the influence values are regularly determined by distributing 100 points according to the influencing strength of individual group members (Crow and Lindquist 1985; Filiatrault and Ritchie 1980; Naumann et al. 1984). Like the direct approaches to preference measurement, this one is very popular because the associated survey is possible with no great commitment of time and content. On the other hand, the simplicity of the process is open to criticism, since it leaves ample scope for simplified or even strategic answers (Corfman 1991; Jackson et al. 1984).

Indirect Influence Measuring – Limit Conjoint Analysis (Step 2)

The method chosen for indirect influence measurement was also LCA, which apart from measuring preferences can be modified appropriately to measure influence values. This is done in the context of Multi-Step Limit Conjoint Analysis. For this purpose LCA no longer presents various product alternatives, but different scenarios of decision conflicts which are feasible within a group (Voeth and Brinkmann 2004, p. 7). In this respect the group members function as features within the conjoint design. Their attitudes in regard to a fictitious object are used as feature characteristics, whereas the model differentiates three possible attitudes: "in favor of purchase", "could agree with purchase" and "against purchase" (Voeth and Brinkmann 2005). The stimuli, thus constituted, are evaluated by the interview-

ees. Part of their task is to rate the conflict scenarios in terms of the likelihood that the group will select a provider's product or service, with a given casting of votes. This method rates the individual stimuli, leaving the beginning (end) of the stimulus at the point where the likelihood of selection by the group is highest (lowest) (Voeth and Brinkmann 2004, p. 9). As with the determination of the importance of individual product features in the assessment of preferences, the rating can then be used to evaluate the relative influences of the buying center members. An example of a conjoint design to measure influences of the buying center members is illustrated in figure 3.

FIGURE 3: EXAMPLE OF INFLUENCE MEASURING
WITH LIMIT CONJOINT ANALYSIS



Simulation of Group Decisions

Corresponding group decisions can then be established from the information on preferences and influences, compiled directly and indirectly. Weighting must then be given to the individual preferences of the buying center members with the related influence values (equation 3). These weightings are then transposed to a group preference (Krishnamurthi 1988, p. 188). Applying the first choice rule, it can then be deduced which of the simulated offers the buying center will select.

$$(3) \quad u_c = \sum_{i=1}^I u_{ic} \cdot w_i$$

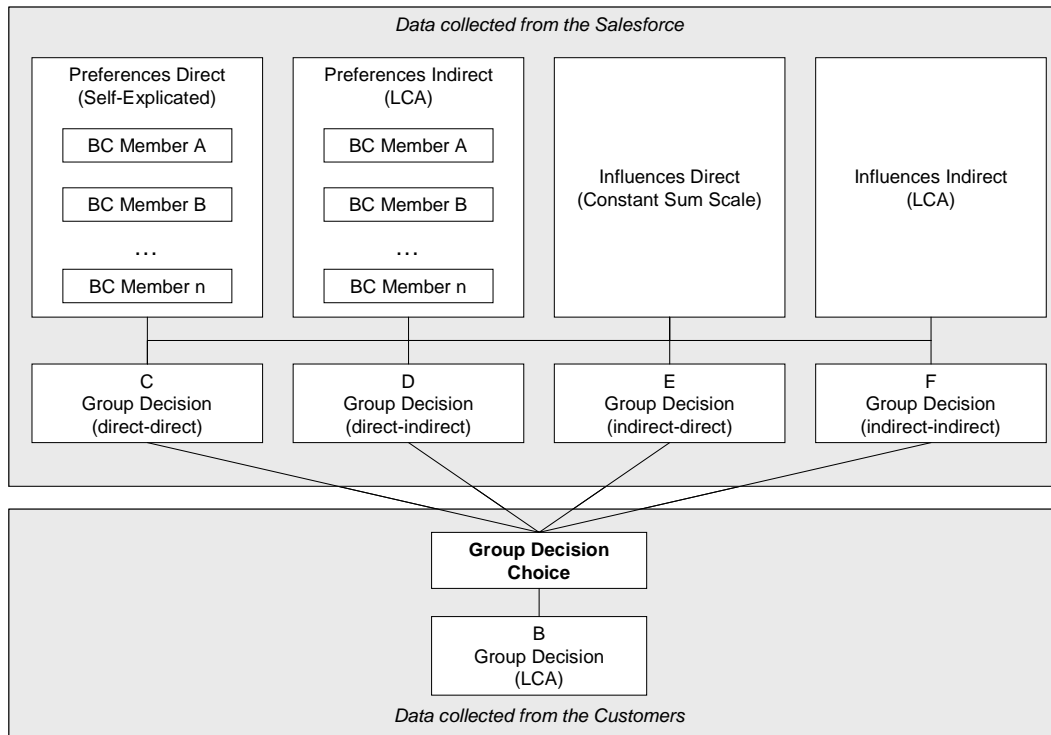
with:

- u_c = estimated total utility value of offer c on group level,
- u_{ic} = estimated total utility value of offer c for the individual i,
- w_i = relative influence of the individual i.

The Research Design

The purpose of the empirical test is to show how far group decisions can be predicted using salesforce information. The question at the forefront here is how far the use of different market research methods affects the result of the prognosis. The selected benchmark of evaluation is prognosis quality, derived from a reconciliation of salesforce and customer viewpoints. Given this background, the following conceptual survey framework seems appropriate (figure 2).

FIGURE 2: THE RESEARCH DESIGN



In the first instance, starting with the salesforce survey, buying center members' individual preferences must be ascertained. For this purpose, the salesmen have to gradually imagine themselves in the shoes of the individual buying center members and determine preferences of each of the members A, B up to n. The procedure has to be carried out once using the direct survey form (self-explicated method) and another time with the indirect variant (using LCA – step 1). The spread of influences in the buying center is then determined. The salesmen have to do this once by awarding 100 points on a constant sum scale, and another time via the LCA (step 2) procedure. Using the information thus obtained, the individual preferences of buying center members, duly weighted with relative influence values, can then be transposed to group preferences. This gives rise to four possible combinations of direct and indirect measurement. Based on the group preference information, group decisions can then be established for specific simulation products (elements C, D, E and F).

To appraise the quality of the group decisions thus obtained, the customers themselves have to verify the decisions. For this purpose, it is necessary to ask the customer how the buying center would decide in relation to the simulation products. However, in view of the data collection problems described above, it must be noted that this estimation cannot be given by all members of the buying center. Instead, the survey can only cover one buying center member deputizing for the whole group.

The group decisions simulated on the basis of salesforce information can be compared with the actual group decision. This makes it possible to determine the prognostic quality of the salesforce information according to the individual methods used (Malhotra et al. 1999, p. 209). In this case prognostic quality (v_i) can be expressed formally as part of the selection decisions correctly forecast by the salesforce. This is obtained from the ratio of number of selection decisions which the salesforce (taking all interviewees together) was able to predict accurately to the total number of selection decisions predicted (equation 4).

$$(4) \quad v_i = \frac{w_i^{accurate}}{w_i^{total}}$$

with:

- v_i = prognostic quality,
 $w_i^{accurate}$ = number of selection decisions which the Salesforce (taking all interviewees together) was able to predict accurately,
 w_i^{total} = total number of selection decisions predicted by the Salesforce.

Considerations of accuracy have hitherto ignored the issue of how to assess a given level of result of prognostic quality. Of course, conclusions can be drawn from which market research method leads to high prognostic accuracy. However, no assessment can be given on how now to rate the achieved result. Under these circumstances, a suitable yardstick of comparison is necessary to assess the content of the prognosis accuracies as a benchmark value. As the salesforce survey is intended to replace customer surveys, the only usable yardstick of comparison is the prognostic accuracy of information obtained from the customer. In other words, it is worth investigating how prognosis values obtained from salesforce information differ from those which would have been obtained by surveying the customer in the conventional way. Indeed, the use of a salesforce survey can only be recommended in connection with analysis of buying center decisions if it yields good prognosis values similar to a customer survey. With this background, the customer survey also contains a survey of buying center preferences using LCA, as if the survey had been carried out in the conventional way (element B).

Research Findings

Sample and Data Collection

To implement the survey plan, a suitable subject of research had to be found. It was necessary to take care to carefully select companies which sold their products via a team of salesmen and whose customers also bought the products and services as a buying center. It also had to be borne in mind that the test entails an evaluation at the individual level. This meant that each salesforce interview had to be precisely attributable to a customer interview. To ensure this, one company had to be found to co-operate in implementing the survey plan.

In the light of this, a partner company was found in the construction industry, dealing internationally with the production and distribution of building materials. For this research, it was necessary to select a specific market in which salesforce and customer were juxtaposed. Therefore the German sales market was detached as the reference object. In this case, the company sells its products and services through a field sales team of 87 members. The main customers for its products and services are building contractors who reach their decisions in a multi-personal group. In this regard, in principle, four buying center functions can be identified: 1. Management, which, as a rule, holds responsibility for all buying activities; 2. Purchasing, which has the task of buying products and services on favorable terms; 3. the Calculation Section, which monitors and is responsible for overall process costs and 4. Building Site Management, responsible for realization of the building project according to plan. The partner company's salesmen are in contact with all four functions, as they serve the customer as a whole.

Once the subject of research had been chosen, it was also possible to identify the buying decision underlying the research with greater precision. For this purpose, at discussions with experts in the partner company, a total of four features, each with three feature characteristics, were selected (table 1). The first feature of decision-making relevance included here was the quality of the building material, defined principally by packing type. Another criterion selected as relevant to the decision was supplier service level. As with the quality assessment, three service levels were distinguished, ranging from standard to full. These highly abstract terms were further justified with specific service contents, intended to contribute to the definition of the individual service levels. The third feature of decision-making relevance was taken as different ways in which the building contractor can place its orders with the manufacturer. The set of features thus obtained was then supplemented by the feature of price, to ensure a near-real decision-making situation. As the individual product lines and associated product groups were positioned differently in price terms, it was necessary to avoid quoting absolute

prices as feature characteristics. Therefore the relevant purchase prices were surveyed separately and, instead, taken into account, as feature characteristics, as a 15 percent surcharge or discount on the relevant purchase price. This ensured a near-real survey at individual level.

TABLE 1: FEATURES AND FEATURE CHARACTERISTICS

Feature	Feature Characteristics
Quality / Packing	<ul style="list-style-type: none"> - No Packing (in bulk) - Standard Packing (pallet and foil) - Premium Packing (pallet and foil with extra edge protection)
Service Level	<ul style="list-style-type: none"> - Standard Service (varying contact person, technical advice, available from Monday to Friday 8 am to 5 pm) - Service plus (personal contact person, technical advice on the building site, formulation of technical resolutions, available from Monday to Friday 7 am to 7 pm) - Full Service (personal contact person, technical advice on the building site, formulation of technical resolutions, available from Monday to Saturday 6 am to 8 pm, order and invoicing online)
Ordering	<ul style="list-style-type: none"> - The Conventional System (predefined and fixed offers) - The Kit System (Selection of certain configurations, services, accessories) - The Individual System (offer for the whole bare brickwork, resolution of alternative offers, optimisation of the product mix)
Price	<ul style="list-style-type: none"> - Customer Price -15% - Current Customer Price - Customer Price +15%

Finally the survey was carried out. The partner company's 87 salesmen were first briefed about the survey plan. Then they were asked to name three customers, and the relevant buying center members, with whom interviews could potentially be held. Following this, the customer survey was carried out. Customers had to make their decisions on three offers: Supplier A, a cheap provider offering products on cost of quality and service; Supplier B, a high-price premium provider; and Supplier C, a provider closest to the current offer and price situation. In this way, a total of 120 online interviews among salespeople (60 interviews) and customers (60 interviews) of the partner company have been carried out in the period from August to October 2005.

Results

The central results of the empirical test can be seen in table 2. Here we compared the prognosis qualities of the different combinations of direct and indirect preference-influence measuring (columns C to F) as well as the prognosis quality obtained by interviewing directly the customer (column B). The comparison is done by calculating the differences of the prognosis qualities between all methods. The results lead to the following insights:

- The starting point of our examination is the random selection probability of 25 percent (column A), which is due to the fact that the buying center not only had the possibility of selecting one of three alternatives, but also of not selecting any of the suppliers. Thus the limit of 25 percent represents a minimum dimension of quality which is fulfilled by all alternatives (column A). The predominance of the methods can furthermore be judged as statistically significant following McNemar.
- The decision-making prognosis based on customer evaluation (column B) serves as one of the more important reference points in this connection, however. This shows that a total of 48.33 percent of the group decisions built on customer evaluation could be correctly predicted, which at the same time matches other results of conjoint analytic utility measurement.
- Interpreting this 48.33 percent prognosis accuracy to be determined on the part of customers as a benchmark for salesforce surveys, it becomes evident that the decision models in which preferences are directly surveyed do not yield substantially poorer prognosis values. Regardless of

whether individual preferences were weighted directly (3B) or indirectly (4B), the information provided by the salesforce meets the requirements of being able to predict group decisions with a reliability similar to that which would otherwise be possible in a customer survey. The differences of 1.7 percent and 3.3 percent respectively are at the same time no more statistically significant.

- If we furthermore observe the decision models starting from an indirect measurement of preferences, we find an entirely different picture. In contrast to the models with direct preference measurement, we find here that the two decision models based on salesforce information are about fifteen percent better (5B and 6B) than consumer surveys. However, here previous results are confirmed that the type of influence measurement has no significant effect on the quality of the prognosis (6E).

TABLE 2: OVERVIEW OF THE EMPIRICAL RESULTS

			A	B	C	D	E	F
			Random	Customer	Sales (dir-dir)	Sales (dir-ind)	Sales (ind-dir)	Sales (ind-ind)
prognosis quality (v_i)			0.250	0.483	0.450	0.467	0.650	0.633
1	Random	0.250	0,000					
2	Customer	0.483	0,233***	0,000				
3	Sales (dir-dir)	0.450	0,200**	-0,033 ^{ns}	0,000			
4	Sales (dir-ind)	0.467	0,217**	-0,017 ^{ns}	0,017 ^{ns}	0,000		
5	Sales (ind-dir)	0.650	0,400***	0,167**	0,200**	0,183**	0,000	
6	Sales (ind-ind)	0.633	0,383***	0,150*	0,183*	0,167*	-0,017 ^{ns}	0,000
			Imputed significance test: McNemar test with					
			* $p \leq 0.05$	** $p \leq 0.01$	*** $p \leq 0.001$			

On the whole, it remains to be noted that indirectly surveying preference information is in all cases superior to the LCA of the direct variant with the self-explicated method (cells 5C and 5D as well as 6C and 6D). But no statement can be made concerning the type of influence measurement. Hence modifying the survey of influence values has no statistically significant effects on the quality of the prognosis achievable by either kind of preference measurement (cells 4C and 6E). The causes of this are found in the data set. Thus consideration must be taken of the fact that the preference concepts of the buying center members were very similar (correlation between the orders of preference = 0.95), which causes the influence distribution in the buying center to play only a subordinate role, because the group decision was already determined by the rectified individual preferences. When all buying center members want the same thing, who in the end dominates the decision is entirely irrelevant to the group decision simulation (Voeth and Brinkmann 2005). As a matter of fact, the result remains unchanged. In addition, we must remember that determining the influence distribution in comparison to preference measurement was less difficult because 85 % of the buying centers surveyed had only two members. The last cause was that the decision-making itself was very hierarchical, which is confirmed by the fact that the most influential member in each case exerted a 65 % influence on the purchasing decision.

Finally, it remains to be stated that the highest prognosis accuracy can be achieved by a combination of indirect preference and direct influence measurement. In the process, it becomes apparent that the salesforce-based analysis of buying center decisions can yield an even higher prognosis accuracy

than is possible with a customer survey. Approved by a Mc-Nemar Significance Test these differences are so convincing, that an attempt at giving reasons is worthwhile:

- One possible cause of the superiority of the indirect-direct or indirect-indirect survey of information in sales compared to a customer survey is that the salesforce deals more intensively with the preferences and decision-making structures of customers than customers do themselves. Hence the salesforce is dependent on this information in order to be able to perform sales work that satisfies customers. In this regard Dwyer and Tanner 2002 claim: "Salespeople who only tell miss a great opportunity: the opportunity to listen." Customers, by contrast, presumably do not occupy themselves so emphatically with their preferences, much less with those of their colleagues in the buying center, but instead make buying decisions rather emotionally in accordance with holistic decision concepts. As a consequence, it can accordingly be assumed that consumers also have difficulty evaluating specific characteristics describing the object as a whole.
- Another argument could be that customers did not answer the questions honestly, but rather presented a picture distorted by circumstances related to their own desire to benefit (Hall 1975, p. 209; Hart 1987, p. 27; Knoke et al. 2002. p. 797; Tomaskovic-Devey et al. 1995). In this case, they will represent the contents of the survey so that they benefit either themselves or their company.
- An argument that is by comparison even more tangible can be found in the way by which the group decisions were ascertained. While the group preferences on the part of customers were surveyed directly in a single step of analysis, they were ascertained on the part of the salesforce in considerably more detail by means of a group decision analysis with a multi-stage structure. In view of this, it can be assumed that measuring individual preferences separately for the various buying center members and influence values leads to a higher prognosis quality of group decisions. Although this is in principle a matter of a methodological aspect, it can be considered to be a further advantage of salesforce surveys, since the two-stage analytical process can only be implemented by way of the salesforce. On the part of customers, by contrast, it is only possible to ask a deputizing member, owing to the data generation problems which must be taken into account.

Discussion

To sum up, it can be stated that our paper has made an important contribution to the analysis of buying center decisions. Instead of developing additional methods of measurement, or modifying existing ones, we have returned our attention to the basic problems of buying center analysis. Starting with the assumption that collecting the information necessary for the application of the models from customers is extremely difficult, we developed a form of data collection involving surveying the salesforce as internal experts which is equally interesting from the points of view of efficiency and effectiveness. Its considerations contain interesting implications both for practical work as well as for scientific inquiry.

Managerial Issues

From a practical point of view, it is necessary to start with the assumption that here primarily the advantages related to efficiency in methods of generating sales data will meet with interest. For instance, conducting customer surveys is still rejected in many industries, on the grounds that they are too complicated and expensive – and this is quite right, in view of the problems involved in collecting data. The salesforce survey presents a way of collecting information that costs almost nothing, and which moreover has the advantage of being able to collect information particularly fast. Apart from the indisputable efficiency benefits of Salesforce surveys, the results of our study also underscore the necessity of analyzing buying center decisions in general. In this context, the results on general performance capability show that separately ascertaining the individual preferences of buying center members and the influences between them is better suited to representing the decision situation than is possible by merely surveying a proxy on the customer side. In view of this, the results should motivate those involved in such work to make use of this methodically somewhat more elaborate way of analyzing purchasing decisions of buying centers.

Research Issues

In addition, we have also been able to make an important contribution to the topic of buying center analysis from a scientific point of view. Here it is primarily the proven effectiveness of the suggested way of collecting sales data which provides the motivation for making more efforts to conduct research in this area. However, the fact must not be overlooked that the findings gained can only be as good as the empirical data material itself. In view of this, it is now necessary to finally point out the limitations of this study and seek approaches for further research work:

- The first drawback is that the study was not able to make any statements concerning the advantage of a variant of influence measurement. The reasons for this were said to be the small size of the buying centers, the low level of conflicts and the fact that one group member dominated the purchasing decision. In view of this, additional studies must be made which circumvent this limitation.
- Another aspect is that the sample contains only salespeople and customers of a single company. In view of this, it is impossible to say with certainty that the findings so gained were not dependent on the corporate culture or other conditions of customer processing. As a consequence, further empirical tests are required in other companies and industries (Sharma and Lambert 1994).
- In addition, the organization of the survey can be criticized. Here it must be critically noted that the salespeople named customer contacts in the runup to the survey with whom the respective interviews were then conducted. Here it must be assumed that the Salesforce primarily named those customers with which good relationships had already been established. Hence this could have had an influence on the quality of the data. Therefore, further studies must survey the customers first and then the Salesforce.
- Finally, further research efforts should take up the question on how far the prognosis results can be improved if not all salespeople are surveyed, but rather a deliberate selection of suitable salespeople is made (Lambert et al. 1990a). Thus it seems probable that, for instance, the experience of one salesperson could influence how well this person can evaluate the preferences and distribution of influence in the buying center. By the same token, the question could be addressed whether, for instance, key account management is able to evaluate the information more reliably than Salesforce employees in the field.

Given that the above aspects have been suggested as examples of research efforts, the sales-based analysis of buying center decisions opens up a great deal of room for further research projects which would be of great interest from both a scientific and a practical point of view.

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