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# **Modeling the Marketing Strategy - Performance Relationship: Towards an Hierarchical Marketing Performance Framework**

Eelko K.R.E. Huizingh and Evelien Zengerink

SOM-theme F: Interactions between consumers and firms

## **Abstract**

Accurate measurement of marketing performance is an important topic for both marketing academics and marketing managers. Many researchers have recognized that marketing performance measurement should go beyond financial measurement. In this paper we propose a conceptual framework that models marketing performance as a sequence of intermediate performance measures ultimately leading to financial performance. This framework, called the Hierarchical Marketing Performance (HMP) framework, starts with highly specific measures, measures that are closely related to the marketing strategy under study, and ends with general performance measures, measures that can be used to assess the effectiveness of almost any kind of marketing strategy. In an empirical study involving 640 companies, the HMP framework is validated for a database marketing strategy. The results clearly support the path structure of the HMP framework. The HMP framework is a generic model, and the authors believe that it can be applied for many different marketing strategies and at many levels of aggregation, and that it can be helpful to integrate the outcomes of comparable marketing studies that rely on different performance measures.

## **1 Introduction**

Marketing managers develop and implement strategies with the intention to improve the performance of their company. Marketing academics study the relationships between strategies and performance with the intention to formulate guidelines about the effectiveness of strategies. Both managers and academics try to find out which strategies under which circumstances may improve to what extent the company's performance. Studies on the marketing strategy-performance relationship usually focus more on strategies than on performance (Bonoma and Clark 1988), a tendency that is also apparent in the more general management literature (e.g., Arlow and Gannon 1982; Capon et al. 1990; Lenz 1981). The emphasis on antecedents does not imply that the possible consequences have not been discussed extensively. Early efforts have been undertaken in the mid-sixties (e.g., Feder 1965; Heskett 1965; Miller 1967), and they have been extended in the eighties (e.g., Mehrotra 1984, and in particular Bonoma and Clark 1988). Recently, Slater et al. (1997) tried to integrate the balance scorecard concept with a classification of generic marketing strategies. Another, well-known example in the marketing literature is the debate on the relationship between market share and profitability (see Szymanski et al. 1993 for an extensive literature overview). Despite these discussions, Bonoma and Clark (1988) conclude that "perhaps no other concept in marketing's short history has proven as stubbornly resistant to conceptualization, definition or application as that of marketing performance". In empirical studies many measures have been used as indicators of performance but, according to Rust and Zahorik (1993), there exist no published studies that have discussed the entire chain of effects from resource allocation to customer satisfaction to profitability.

From a practitioner's point of view the relationship between marketing strategy and performance is confusing. Many marketing managers have to cope with the

paradoxical situation that while marketing professionals view marketing instruments as key sales drivers, many companies still base their marketing budgets on annual sales forecasts (Slywotzky and Shapiro 1993). More recent literature stresses that marketing and sales expenditures should be treated as investments in customers and that management should focus on the profitability of a customer during the entire customer life cycle. Order profit calculations should be replaced by life time value calculations (Dwyer 1989, Hoekstra and Huizingh 1999).

Accurate measurement of marketing performance is not only important in the marketing accountability debate. It also enables marketing managers to objectively or consistently evaluate the quality of their decisions (Chakravarthy 1986) and is crucial for the learning capability of organizations (Slater and Narver 1995, Sengè 1990). Performance measures also serve as key drivers for marketing and sales employees. “What gets measured gets attention” (Eccles 1991), especially if the performance measurement system is linked to the reward system. However, due to measurement systems that do not match with the long-term objectives of the organization this focus is not always for the best sake of the organization (Kohli and Jaworksi 1990; Mehrotra 1984). Companies are using the wrong or too simple measures as performance indicators, due to a lack of understanding of the performance concept (e.g., by relying on short-term financial reports, Cravens 1998), or simply because other indicators are not available. This is also often the case in empirical studies that are based on secondary data, for example scanner data (e.g., Blattberg et al 1995) or PIMS data (e.g., Buzzell and Gale 1987, Jacobson 1990). But even in these cases, the researcher should detail explicitly the relationship of an indicator with performance since these relationships are not always as obvious as they seem to be. For example, unit sales can be both positively and negatively related to profits, depending on the margin. If the margin is affected by the marketing strategy under study (e.g., pricing studies), then the relationship between unit sales and profits is no longer obvious.

In many cases, researchers and managers can choose from a broad range of possible performance indicators. Lewington et al. (1998) refer to a database marketing textbook (Shaw and Stone 1989) that describes over 100 performance measures which can be derived from database marketing systems. Because the effects of a particular marketing strategy can easily be obfuscated by many different factors that are beyond control of the researcher or manager, it is a common practice to rely on performance measures that are directly related to the topic studied. Examples include response rate in direct marketing studies (Yang 1997) and recall in advertising studies (Calder and Strenthal 1980). Still, even for highly specific marketing strategies there are many possible performance indicators. Cavusgil and Zou (1994), for example, focused on the effectiveness of export marketing strategies and revealed no less than eleven different measures that have been used as indicators of export performance. These measures range from general financial measures, such as sales and profits, to specific subjective measures, such as attitudes toward export and export involvement. The diversity of possible performance measures stresses the importance of the selection of appropriate measures and the necessity of a comprehensive framework that relates strategies to the various performance measures.

Several authors have stressed that performance is a richer concept than just a single measure, that it should be treated as a multidimensional construct composed of various related elements (e.g. Chakravarthy 1986; Walker and Ruekert 1987). The goal of this paper is to improve our understanding of the complex relationships between strategies and performance by considering performance as a chain of possible effects. Some studies have explored this notion, but only conceptually as part of a larger framework (e.g., Day and Wensley 1988; Rust et al. 1995) or in the case of a specific marketing strategy (e.g., Macintosh and Lockshin 1997). We will extend current knowledge in two different ways. First, by developing a comprehensive conceptual framework that relates marketing strategies to performance. This

framework is composed of a number of sequential levels and is therefore called the hierarchical marketing performance framework (HMP framework). The HMP framework is not specific for one particular (class of) marketing strategies, but it is general and can be used as a guideline for studies focusing on the effectiveness of marketing strategies. One of its advantages is that it integrates Bonoma and Clark's (1988) plea to incorporate the judgement of managers with financial performance measures. Second, to validate and illustrate the use of the proposed framework we will show how the performance of a marketing strategy can be assessed in practice. As an example we use a database marketing strategy and evaluate that strategy at the level of a business unit.

This paper is structured as follows. We will start with an overview of the various categories of performance measures that have been used and/or proposed in marketing literature (section 2). The next section first discusses the various ways by which researchers have modeled the relationship between a marketing strategy and marketing performance, and then introduces the hierarchical marketing performance (HMP) framework. This framework is a path model including several intermediate performance measures and financial performance, as well as the relationships between these performance measures. The latter part of this paper describes an application of the HMP framework for a database marketing strategy. The operationalization of each of the levels of the conceptual HMP framework is described in section 4. The framework has been validated in an empirical study, using data of 640 companies. The research design for this study, and the measurement scales and analyses are described in section 5. The management implications are discussed in section 6 and the directions for further research in section 7. The paper ends with a brief overview of the main conclusions.

## 2 Categories of Performance Measures

According to Venkatraman and Ramanujam (1986) the core of the concept of business performance consists of outcome-based financial indicators. They refer to these indicators as the *financial performance*, while others use the term economic performance (e.g., Cavusgil and Zou 1994; Bello and Gilliland 1997). Financial performance indicators include measures referring to levels, growth, and variability in profit (typically related to assets, investment or owner's equity) as well as such measures as market value, assets, equity, cash flow, sales and market or book value (Capon et al. 1990). Many researchers accept this notion and consider superior financial business performance as the ultimate goal of marketing strategies (e.g., Hunt and Morgan 1995, 1996). Marketing strategies can be evaluated at various levels, ranging from the macro-level to the micro level, e.g., at the level of a firm, business unit or brand to groups of customers or even individual customers. At each level appropriate financial measures can be defined to determine the degree of success of a marketing strategy.

The question, however, is whether or not financial indicators can sufficiently approximate the actual performance of the organization. Many authors argue that they do not. Financial performance measures are usually time-lagged since they measure the success of past activities (Bonoma and Clark 1988; Day and Wensley 1988), tend to focus on the short-term (Madsen 1998), and give little indication of an organization's performance potential in the future (Chakravarthy 1986; Denby-Jones 1998). They are determined by many different factors, are often incomplete and can be misleading. The accounts of a company can be manipulated to look good, even though the actual performance of the company is appalling (Saunders et al. 1992) or organizations may apply different accounting and cost allocation procedures (Day and

Wensley 1988; Reddy et al. 1994). Financial data are often available only at an aggregated firm level, while many studies are focused on a more disaggregate level (Gatignon et al., 1997). They are not comparable across widely different industry settings or firms may be reluctant to release actual financial data (Reddy et al. 1994; Olson et al. 1995).

Although financial measures are essential to a comprehensive representation of performance, it is necessary to complement them by other measures (Chakravarthy 1986; Madsen 1998). For example, Narver and Slater (1990) investigated the relationship between market orientation and financial performance, and suggested that future research should also focus on performance measures that are more closely related to market orientation (e.g., customer retention and new product success). Venkatraman and Ramanujam (1986) recommend the use of operational performance indicators (e.g., product quality and market share). These measures would enable researchers to go beyond the black-box approach that seems to characterize the exclusive use of financial measures. To complement efficiency measures, Bonoma and Clark (1988) introduce effectiveness measures of performance, and others stress the importance of measuring the quality of a firm's transformations (e.g., Evan 1976; Chakravarthy 1986). All proposed additional performance indicators are examples of *intermediate performance measures*. Intermediate performance measures are indicators that (1) are more closely related to the topic that is being studied and (2) are related to financial performance. If the projected impact of a strategy on financial performance is small compared to the many other variables that influence financial performance, it is a common and acceptable solution to define appropriate intermediate performance measures. An intermediate measure can be quite general, e.g., satisfaction or market share, or highly specific, e.g., the yearly number of citations of a computer program in a software magazine (Green et al. 1995).



Although the performance measurement problem has been solved conceptually by including intermediate performance indicators, in empirical studies it is sometimes hard or impossible to obtain absolute measures of both financial and intermediate performance. For example, an organization may not measure this particular variable or the respondent does not know or is not allowed or willing to report its value. Sometimes objective performance measures are inappropriate because the researcher tries to determine the effect of a marketing strategy that will possibly effect performance only in the long run. Smith and Barclay (1997), for example, study the effects of selling partner relationships and reject objective measures due to (among others) long sell cycles. Besides the measurement problem, there is a comparability problem too. Absolute, intermediate as well as financial, performance measures are affected by industry-related factors (Sapienza et al. 1988). They may be vulnerable for the size of the company, the industry, and current market share, to mention only a few factors. Absolute measures are also hard to compare in cross-country studies (Styles 1998). When using absolute measures, researchers have to limit the focus of their study (e.g., to one market segment) or to include the other influencing variables in their model. These variables can be modeled as an additional group of factors influencing performance (e.g., Narver and Slater 1990) or they can be modeled as moderators (e.g., Jaworski and Kohli 1993; Morgan and Piercy 1998).

In some cases the comparability problem can be solved by using *relative performance measures*. Performance is measured as the percentage difference compared to, for example, the ‘before’ situation or to competitors. Comparisons to the ‘before’ situation can be used to determine the effect of a specific marketing decision and assume a relatively stable (competitive) environment. They are often used in new product studies, e.g. to investigate the success of product replacements (Saunders and Jobber 1994) or line extensions (Reddy et al. 1994). Competitor comparisons are useful to assess how well a company performed in comparison to companies that are

in a similar situation (e.g., in the same market). This measure can be defined in several ways, for example by referring to a specific number of competitors (e.g, the three largest competitors, Kotabe et al. 1998), ‘major competitors’ (Jaworski and Kohli 1993), ‘firms of similar sales volume in your industry and region’ (Dess 1987), or all competitors (e.g., Narver and Slater 1990). Competitor comparisons are also useful when there is not a clear ‘before’ situation, as is, for example, the case when researchers use cross section analyses to assess the effect on performance of market orientation (Narver and Slater 1990) or the global procurement of services (Kotabe et al. 1998).

Although relative performance measures in terms of percentages have been widely used, they are not always appropriate. For example, a company with a very low market share can, in theory, more easily double its market share than a company with a large market share, and doubling market share is even impossible if the current market share exceeds 50 percent. Similarly, the relative size of a company compared to its main competitor (e.g., much smaller, comparable size, much larger) can affect competitor-oriented relative performance measures. If these problems cannot (easily) be overcome, researchers tend to rely on *subjective or perceived performance* instead of objective performance (other authors use the terms ‘soft’ versus ‘hard’ measures, e.g., Dolton et al. 1980). A subjective performance measure tries to capture the extent to which the respondent believes that a certain objective performance measure has been realized. According to some authors perceptions are superior compared to objective (financial) measures (e.g., Jaworski and Kohli 1993, Covin et al. 1994). The incorporation of managerial judgement allows a composite statement to be made about overall marketing performance (Bonoma and Clark 1988). Subjective performance measures are often measured by means of a Likert-type scale with five (e.g., Dess 1987; Jaworski and Kohli 1993), seven (e.g., Smith and Barclay 1997; Bello and Gilliland 1997) or ten points (e.g., Cavusgil and Zou 1994; Styles 1997).

The perceptions can be measured by a single item but often researchers apply a multi item scale to capitalize on the advantage of perceptions to include the satisfaction with respect to a wide range of elements of performance. Sometimes an overall satisfaction item is used (e.g., Smith and Barclay 1997) to provide the respondents with an opportunity to incorporate implicitly non-economic considerations and aspiration levels in their assessment (Dess 1987).

Although the obvious disadvantage of perceived performance measurement is that it is a form of self-assessment, it is the most commonly used form of performance measurement in marketing research (Saunders et al., 1992). Some authors have even used this fact as a reason by itself to apply subjective performance measures (e.g., Smith and Barclay 1997). Several studies have shown that perceived performance measures are reliable, in the sense that they correlate positively and significantly with various objective measures (Bonoma and Clark 1988; Covin et al. 1994; Dess 1987; Pearce et al. 1987; Saunders et al. 1992). Day and Nedungadi (1994) put forward another convincing argument in favor of subjective measures, namely that to support decision making in practice it is more important to measure managerial perceptions than objective reality.

To summarize the previous discussion, it is clear that many different performance measures can be used. They include both financial and intermediate performance, which can be measured in an absolute and relative way, as well as objectively and subjectively. Table 1 provides an overview of the various performance measures comparing the dimension objective-subjective with the absolute-relative dimension. The cell absolute-subjective contains all subjective measures that do not include an explicit reference standard, such as competitors, expectations or 'before' situations (e.g., the export performance scale of Lee (1998)). The most often used combination seems to be the subjectively measured relative performance measures (e.g., Gatignon et al. 1997; Jaworski and Kohli 1993; Narver and Slater 1990; Pearce et al. 1987).

Based on qualitative interviews concerning the measurement of export performance, Madsen (1998) concluded that managers most often use objective, absolute measures of short-term financial performance or subjective, relative, market-related measures resulting in a slightly longer-term view of export performance.

<< Insert Table 1 >>

### **3 Linking strategy to performance**

No matter how a researcher decides to measure performance, the researcher has multiple options to formulate the relationship between a strategy and performance. There are at least three approaches to specify this relationship. A researcher can relate the marketing strategy to one representation of performance, consider performance as a multidimensional phenomenon and investigate the relationship between strategy and each dimension, or relate the strategy to a framework consisting of several related performance measures.

#### *1. Model one relationship with a single performance representation*

The most straightforward approach is to investigate the relationship between a strategy and one representation of performance. Performance may be measured as one 'most appropriate' performance indicator or as a construct, see figures 1a and 1b. A single measure can be a general measure (such as market share, sales, or ROI) or a measure dedicated to a specific research question (e.g., repeat-purchase behavior to measure the performance of loyalty programs, Sharp and Sharp 1997). Performance can also be measured as a construct to include several aspects of performance that together represent performance, for example Green et al. (1995) use seven items as indicators for the market performance of a new word processor. The construct can also consist of multiple layers of indicators. Bello and Gilliland (1997) compose an export channel performance construct from strategic performance (measured by means of four items), selling performance (three items), and economic performance (four items). The indicators can be combined into an unweighted sum score (Bello and Gilliland 1997) or a weighted sum score. These weights can be determined statistically (usually factor loadings, e.g., Bello and Gilliland 1997), or explicitly

stated by the respondents (e.g., Cavusgil and Zou 1994; Covin et al. 1994). In all cases, performance is ultimately calculated in the form of one variable, and the researcher investigates the relationship between a strategy and that variable.

<< Insert Figures 1a and 1b >>

## *2. Model performance as a multidimensional phenomenon*

In the second approach the researcher hypothesizes that the strategy is related to several, not necessarily related performance measures, see figure 2. The researcher acknowledges that performance is a richer concept than just a single measure and that a strategy can have several possible consequences. The marketing literature contains many examples of multidimensional performance models, such as effectiveness, efficiency and adaptability (Walker and Ruekert 1987), quality, market performance and financial performance (Morgan and Piercy 1998), and customer-based performance, financial performance and technical product performance (Hultink et al. 1998). Other studies investigate the relationship of a strategy with a number of specific measures such as unit volume and dollar profits (Hoch et al. 1994), or market share, new product success rate, return on investment, and sales growth (Greenley and Foxall 1998). Outside marketing, the probably best known multidimensional performance model is the balanced scorecard (Kaplan and Norton 1992, 1993, 1996a, 1996b).

Studies that treat performance as a multidimensional phenomenon usually focus on the consequences of a strategy and pay less attention to whether or not these consequences are related. Some authors assume that the dimensions are negatively correlated (e.g., Donaldson 1984; Walker and Ruekert 1987), but many other studies

assumed (e.g., Gopalakrishna et al. 1995; Shoham 1998) or found (Greenley and Foxall 1998) positive correlation between the dimensions. Only in a few cases the dimensions are confirmed by a statistical test, e.g., Kotabe et al. (1998) who used factor analysis to support the conceptualized dimensions strategic performance, financial performance, and service quality.

A multidimensional model of performance can lead to results that are mixed or even confusing. Greenley and Foxall (1998), for example, study the relationships of different stakeholder orientations (consumer, competitor, employee, and shareholder orientation) with four performance dimensions. They conclude that the definition of company success seems to be a crucial issue for stakeholder orientation, which stresses the importance of understanding the relationships among performance measures.

<< Insert Figure 2 >>

### 3. *Model performance as a framework consisting of several related measures*

The third approach assumes that a strategy influences one or more intermediate performance measures, that may in turn influence other intermediate performance measures, resulting in a change in an ultimate performance measure (see figures 3a and 3b for examples). The most important difference with the previous approach is that the model not only includes relationships between strategies and performance but also between the various performance measures. The marketing literature contains several examples of performance path models. Macintosh and Lockshin (1997) provide a simple example in which store attitude influences purchase intention, which, in turn, influences the proportion of category purchases. A more complex example is found in Day and Wensley (1988). Their framework for diagnosing competitive advantage postulates that strategic choices will lead to positional advantages which in turn will influence customer-focused performance outcomes (such as satisfaction and loyalty), and that will ultimately improve competitor-centered performance measures (such as market share and relative profits). At the micro-level, the hierarchy-of-effects models in advertising research (McGuire 1978) form one of the best known classes of performance path models. These models include a path structure starting from attention and cognition, leading to affection, and ultimately conation.

<< Insert Figures 3a and 3b >>

Modeling the relationship between strategy and performance as a path model has several advantages compared to the other two approaches. Path models offer the



opportunity to model explicitly the relationships between various aspects of performance in the form of sequences (from short-term to long-term performance), hierarchical levels (from operational to strategic), or causal relationships (where previous intermediate measures are considered as antecedents of the subsequent performance indicators). Path models explain why similar measures are used in some studies as antecedents of performance and in other studies as performance measures. Customer satisfaction, for example, has been used both as an antecedent (e.g., Anderson et al. 1994) and as a consequence (e.g., Price et al. 1995), while others have integrated both views (e.g., Anderson and Sullivan 1993). In path models, implicit assumptions, e.g., that a certain (intermediate) measure is somehow related to financial performance, are made explicit. Path models can also be used to validate subjective performance measures since researchers use subjective performance based on the assumption of positive and significant correlation with (objective) financial performance. Finally, from a managerial point of view path models may prevent managers from paying attention to short-term performance measures only (Mehrotra 1984). The intermediate performance indicators in the path model can serve as leading indicators of what the financial measures will subsequently reveal (Slater et al. 1997). Thus they can be used to construct an 'early warning system' for marketing management.

Performance measurement using path models is the most comprehensive approach if a researcher is not only interested in whether or not a strategy is related to performance but also in how the strategy is related to performance. It is an approach that has been applied in other areas, for example DeLone and McLean (1992) have developed a path model consisting of six related elements to capture information system success. Also, the Balanced Scorecard incorporates a path model since it not only focuses on determining the optimal mix of performance measures but also highlights the importance of revealing the true drivers of performance (Kaplan and

Norton 1992, 1993, 1996a, 1996b). Strategy is linked to performance by modeling the chain of performance drivers to outcomes. Day and Wensley (1988) specified a performance model that included a path structure instead of a model that included only the multiple performance measures.

Since many marketing decisions do not directly influence financial measures, such as ROI, performance path models form an attractive vehicle to explain the relationship between a marketing strategy and performance. This is especially true in the case of marketing support activities. In general, marketing efforts can be categorized as operational activities and support activities. Operational activities are those marketing efforts that directly influence customers and the market position of a company (e.g., advertising campaigns or sales promotions). Support activities enable marketers to create, design, execute, monitor, and evaluate operational activities. Examples of marketing support activities include training and education for marketing personnel, activities to motivate employees, the atmosphere and culture in the marketing department, internal communication, the organizational structure, and adequate support tools (ranging from fresh coffee and clean offices to high quality printers). Not surprisingly, in marketing research most attention is being paid to the effectiveness of operational activities, but literature also contains several exceptions. Challagalla and Shervani (1996) suggest that capability control (e.g., developing individual skills and abilities) influences the performance of salespersons, and Spies et al. (1997) argue that store atmosphere is related to several intermediate performance measures, such as customer satisfaction and purchasing behavior. In the next sections we will propose and validate a performance path model that describes the effects of another marketing support activity, namely the efforts to maintain high-quality customer information (e.g., training of call center employees, calling a sample of customers to verify information, or developing advanced databases).

If we accept the notion of financial performance as the ultimate objective of a for-profit organization, then the general structure of a performance path model comprises of a strategy that is linked to a sequence of one or more intermediate measures that are ultimately linked to financial performance. The first intermediate measures may be highly specific, being closely related to the strategy investigated, while the latter part of the path model contains the more general measures. For example, compare the performance path models for direct mail and television commercials. While both models will probably be highly different in the beginning, that is the first few steps of the path model, the performance measures will become more and more similar at subsequent steps. Figure 4 visualizes this example conceptually. For both direct mail and tv-commercials this figure contains four intermediate performance measures (this number is arbitrary), and ultimately financial performance. The distance between the intermediate measures for both strategies symbolizes the degree to which these measures are specific for either direct mail or tv-commercials. A larger distance represents more specific measures. In the subsequent steps the distances between both strategies decrease, reflecting that the intermediate performance measures become more similar as the intermediate measures become more generic. The extent to which the intermediate performance measures for two strategies will be similar in the first phases, depends upon the similarity of both marketing strategies. The more similar the two marketing strategies, the earlier in the path model their respective intermediate performance measures will be similar. Because the path model reflects the sequence from highly specific to fairly general performance measures, we will refer to this model as the Hierarchical Marketing Performance (HMP) framework.

<< Insert Figure 4 >>

A few examples of sequential performance structures that match the HMP framework can be found in literature. Rust et al. (1995) present a conceptual model in which they model the relationship between service quality improvement efforts and financial performance (profitability) as a chain of effects. Their model contains four intermediate measures: (1) service quality improvement, (2) perceived service quality and customer satisfaction, (3) customer retention, and (4) revenues and market share. In an empirical study, Rust and Zahorik (1993) showed how customer satisfaction is linked sequentially to individual loyalty, aggregate retention rate, market share, and profits. As an application of the HMP framework we will present and validate in the next sections a model that links a marketing support activity (in this case: the efforts to maintain high-quality customer information) to performance.

#### **4 Application of Hierarchical Performance Framework**

To provide empirical evidence for the HMP framework, we conducted a field study among 640 companies that perform database marketing activities. In our study, we focus on a marketing support activity in the field of database marketing, namely the efforts of companies to maintain a high-quality customer database. If a company is highly involved in updating, correcting and completing its customer information, what effects will these efforts have on the performance of that organization? Database marketing organizations rely heavily on the customer databases (Roberts 1997). Small-scale mailings, e.g. 100 letters, can be checked manually to find incorrect or duplicate addresses. However, if companies use larger scale mailings or if marketing decision-making is based largely on information about the behavior of individual customers, then the quality of the customer database becomes crucial (Thoolen, 1994). Nowadays, the importance of customer databases goes far beyond traditional database marketers. For example, in retail marketing the 'retailing as distribution' model is being replaced by a different conceptualization of retailing that begins with customer databases (Mulhern, 1997). High-quality customer databases are crucial for the implementation of strategies such as relationship marketing (Webster, 1992, 1994), direct marketing (Hoekstra, 1998), database marketing (Shaw and Stone, 1989), and event-driven marketing.

In this example the HMP framework includes several intermediate performance measures related to activities that are aimed at improving and/or maintaining the quality of customer information. The model tested consists of four intermediate performance measures and financial performance (ROI). Each intermediate performance measure is a construct that includes items that have been used as

performance indicators in previous studies. To control for the effects of factors such as industry and company size, the intermediate performance indicators are defined relatively to the 'before' situation and measured subjectively on a five-point scale. As already noted, it is important that studies that include subjective and/or intermediate performance measures explicitly link these measures to objectively measured financial performance, therefore the financial performance variable in our model (ROI) is measured objectively. A positive and significant correlation between the perceived performance measures and financial performance prevents that the validity of perceived performance is limited to face validity.

<< Insert Figure 5 >>

The HMP framework starts with performance measures that are highly specific for the efforts to maintain high-quality customer information. Moving further to the right the model includes measures that are more generic. These measures make convergence possible between the performance path models of two different, though related, marketing strategies, as depicted in Figure 4. We will briefly discuss how we operationalized each level of the HMP framework (Figure 5 shows the various levels of this application, while Table 2 in the next section provides an overview of all items used in this study). Note that the final two levels in this application are highly similar to the final two levels in the path model conceptualized by Rust et al. (1995) which focused on the efforts to improve service quality.

1. *Quality of Marketing Information.* The first intermediate construct represents the quality of the available marketing information. This is the construct most closely related to the efforts that are aimed at improving the quality of the customer database. It is measured by means of three indicators, including better understanding of

customers, more reliable information and increasingly precise targeting opportunities (Stone and Shaw, 1987). According to Stone and Shaw, more investments in developing and maintaining customer databases will positively affect the quality of the marketing information.

2. *Outcome of Database Marketing Activities.* In the short run, high-quality marketing information will positively influence the outcome of the database marketing activities in terms of for example, lower costs, higher response rates (Stone and Shaw, 1987), better targeting, and less waste in the execution of a direct marketing campaign due to insufficient (or incorrect) information.

3. *Customer Behavior and Perception.* Customer satisfaction is widely recognized as an appropriate marketing performance measure (e.g., Webster 1988). Other authors suggested related performance measures such as customer loyalty, customer commitment, customer retention and customer defection rate (Treacy and Wiersema 1993, Willenborg and Leeflang 1997, Buttle 1996, Rowe and Barnes 1998, Reichheld and Sasser 1990). Altogether, five items measure customer behavior and perception, these are statement about customer satisfaction, customer loyalty and customer defection rate.

4. *Market-Based Business Performance.* Improved customer behavior and attitudes have a positive effect on market-based business performance. Rust and Zahorik (1993) developed a mathematical framework to assess the relationship between customer satisfaction and market share. Reichheld and Sasser (1990) advocated the positive influence of defection rate on turnover and eventually, on profit. Market share and turnover together measure market-based business performance.

5. *ROI.* The last step in the database marketing performance model links the subjective performance measures with financial performance, measured by ROI. Support for a positive and significant correlation between market-based business performance (e.g., market share and turnover) is found by two meta-analyses of

published studies. Szymanski et al. (1993) concluded that, on average, market share is positively related with profitability, and Capon et al. (1990) found that both market share and sales growth are positively associated with financial performance.



## **5 Measurement and analysis**

### *The Sample*

For each of the constructs in the HMP framework items were developed based on literature study and several expert interviews. This process resulted in a list of 16 items. For each of these items a question was formulated that asked for the extent to which the respondents perceived that the performance of their company had been improved due to the efforts to maintain high-quality customer information (on a five-point Likert scale). ROI was measured by means of an open question. After testing the questionnaire, the data were collected.

The data were collected from 640 companies in the Netherlands that perform database marketing activities. The companies were selected from a commercial list that was considered to be the most complete list of database marketing companies in the Netherlands. This list contained almost 15,000 companies. Stratified sampling was applied because it was expected that companies with larger customer databases pay more attention to maintaining high-quality customer information and a lot of heterogeneity within this group was expected concerning the way in which high-quality customer information is maintained. The stratification approach implied that higher proportions of companies were selected from the strata with companies having a larger number of customers in their database. (Analyses of our data provide post hoc support for our assumption: a positive and significant correlation was found between the number of customers in the database and the intensity with which organizations pursued high-quality customer information.)

By means of stratified sampling 2090 companies were selected. These companies were first mailed with a letter that explained the objectives of the study and stressed

its importance for the database marketing industry in the Netherlands. In the next phase they were called by telephone to conduct the interview or to make an appointment for the interview. This process resulted in 640 respondents, a response rate of 30.6 percent. The average interview lasted 32 minutes.

The respondents were the database manager or someone with a comparable function (being responsible for the customer database). The companies were mainly active in the business-to-business market. Almost 20 percent of the companies considered themselves as market leaders, while 45 percent considered themselves as 'one of the larger suppliers' in their market. For most companies database marketing was not their sole form of marketing. On average, almost 30 percent of revenues followed from database marketing and 33 percent of the marketing budget was spent at database marketing.

The validation of the conceptual model presented in the previous section involved the use of different techniques. First of all, the quality of each measurement scale was tested before estimating the parameters in the final model. To assess this quality we based the methodology on the frameworks provided by Churchill (1979) and Steenkamp and Van Trijp (1991) to develop reliable and valid marketing constructs. After testing all scales, the proposed path model was tested using a LISREL model.

### ***Reliability***

The item purification procedure as described by Churchill (1979) was applied to each of the separate measurement scales. This procedure starts with the computation of the inter-item correlations. Furthermore, Cronbach's alpha is computed to measure the reliability of the measurement scales, and item-to-total correlations to identify which items are causing a possibly low Cronbach's alpha. Low inter-item correlations, low

Cronbach's alphas and low item-to-total correlations indicate that some items do not share equally in the common core and should be deleted from the scale. The results of this part of the item purification procedure are displayed in table 2. All Cronbach's alphas do exceed the required value of 0.7 (all alphas are >.8) and could not be improved by deleting items.

<< Insert Table 2 >>

### ***Unidimensionality***

In order to get statistical evidence for the proposed performance constructs, we performed an exploratory factor analysis. The results show that the chosen performance constructs are well founded by statistical evidence. The four factors extracted explain (almost) 60 percent of the variance in the original items. Financial performance (ROI) loaded on the market-based business performance construct. However, we will treat ROI as a separate factor to provide evidence for the reliability of the subjective measures (which is achieved when there is a positive and significant correlation between the subjective and objective measures).

The results of the confirmatory factor analysis provide also evidence for the conceptual model. All constructs appeared to be unidimensional according to the goodness-of-fit statistics provided by LISREL (with a minimum AGFI of 0.91).

### ***Validity***

All constructs used in our conceptual model satisfy the requirement of content validity due to an extensive literature research, pretests and expert interviews with

academics as well as practitioners. To assess within-method convergent validity the factor regression coefficient on a particular item has to be substantial, which is achieved when the correlation between the item and the construct exceeds 0.50 (Hildebrandt, 1987), provided that the overall fit of the model is acceptable. This holds for all our measurement scales. Both across-method convergent validity and discriminant validity are often assessed through the multitrait-multimethod matrix (Campbell and Fiske, 1959). However, as Steenkamp and Van Trijp (1991) already noted, this method is not that much applied in literature due to the high costs and difficulties of developing two different methods to measure the same construct. They suggest an alternative, though limited, way of testing discriminant validity when only one method is available for each construct by calculating the correlation between two different, but to some extent conceptually related, constructs in the research model. When this correlation is significantly smaller than unity discriminant validity is supported. To calculate these correlations we follow convention and use unweighted sum scores to represent the constructs. The correlations between the five constructs can be found in table 3. The corresponding 95 % confidence intervals are given inbetween the brackets and these intervals support discriminant validity, due to the fact that none of these confidence intervals include the value one.

<< Insert Table 3 >>

Criterion-related or predictive validity is the extent to which the measurement scale correctly predicts a criterion measure. Due to the path structure underlying our conceptual model, there are several criterion variables available. All below-diagonal values in table 3 are actually appropriate to assess criterion-related validity.

Consequently, all constructs are criterion-related valid because of these positive and significant correlations.

All validity measures described above are concerned with the validity of the separate constructs, known as the measurement part of the conceptual model. Nomological validity however, is concerned with the validity of the structural part of the model, which means testing the relationships between the constructs and meanwhile correcting for the measurement part of the model. The advantage of this approach compared to testing the conceptual model in LISREL and only looking at the fit statistics is that in case of a bad measurement part of the model these fit statistics are heavily influenced, which makes it impossible to judge the structural part of the model (Steenkamp and Van Trijp, 1991). To assess nomological validity, five nested structural models are compared, which is a sequential testing procedure proposed by Anderson and Gerbing (1988). The model proves to be nomologically valid, using an incremental fit index (IFI) as recommended by Anderson and Gerbing (1988). The next most likely alternative appeared to be significantly and substantially different from the theoretical model, due to a significant chi-square difference and a substantial shift in the IFI from 0.93 to 0.88.

### ***Results***

From the sequential testing procedure it becomes clear that the path structure of the HMP framework is supported by the survey data. The path coefficients, factor loadings and fit statistics of the theoretical model estimated in LISREL are displayed in Figure 6 and table 4. All reported coefficients are significant at  $p < .001$  and have the expected sign. All factor loadings are above the required value of 0.5 (Hair et al. 1995) and the fit statistics indicate a good fit of the model. From this we conclude that the empirical results from our field study support the path structure of the HMP

framework. Furthermore, the positive, significant coefficient between market-based business performance and ROI provides evidence for the reliability of the subjective performance measurements. This relationship is relatively weak compared to the others, which is probably due to the fact that these two variables are measured differently, i.e., subjectively versus objectively, and because ROI is affected by a lot of other factors not included in this model. Finally, given the fact that our sample included mostly industrial businesses and some consumer businesses, this relatively low value also supports the findings from Szymanski et al. (1993). They concluded that the relationship between market share and profitability is likely to be moderately strong for a mixed group of businesses, i.e., some consumer and some industrial, and weakest for industrial businesses.

<< Insert Figure 6 and Table 4 >>

## **6 Managerial implications**

In this paper we have applied the Hierarchical Marketing Performance framework to show that efforts to maintain a high-quality customer database ultimately, through a chain of effects, lead to improved financial performance. Since the quality of a customer database is only indirectly important for marketing strategies, it is important for marketing managers to have a model by which they can show that investments in such support activities actually have a pay off. In this case, the first order effect is improvements in the quality of marketing information. We have shown that through better outcomes of database marketing activities and two other steps, this ultimately leads to a higher ROI.

The Hierarchical Marketing Performance framework that is applied in this paper is a generic model of marketing performance measurement. It supports the notion that the effects of a marketing strategy are best measured by means of indicators that are closely related to that particular strategy, provided that these indicators are (ultimately) positively and significantly correlated with financial performance. For marketing managers this kind of performance models offers several advantages. First, it includes the ultimate link with bottom-line, financial performance. Insight in the relationship between marketing strategies and financial performance is important now marketing managers increasingly have to face the accountability question. If marketing expenditures are to be considered as investments, then no marketing professional can escape from investigating the relationship with financial performance. Strategies may influence directly various kinds of consumer attitudes but ultimately there should be a pay off. Well developed path models that describe the effects of marketing strategies as a chain of effects leading to ultimately financial

performance provide marketing managers with a tool that helps them answer the accountability questions.

Second, if the intermediate measures precede financial measures in time, then the construction of a chain of performance effects model offers the opportunity to identify the factors that can be used as early-warning indicators. Many intermediate measures will be available within a much shorter time span compared to the, often time lagged, financial measures. Once the relationships between the various intermediate measures and financial performance have been established, it is quite simple to implement the model in, for example, a spreadsheet to enable the manager with an easy to use tool that interactively displays the projected effects of various intermediate measures on financial performance. The intermediate measures may signal situations that need to be closely monitored and may call for corrective action, even at times that current financial performance still seems to be satisfying. The earlier in the chain of effects a manager identifies a potential problem, the less likely it is that this situation or event will have severe financial consequences and/or affect the competitive position of the company.

Third, although the HMP framework enables marketing managers with the opportunity of concentrating on intermediate performance measures instead of financial measures, it prevents the manager from relying on any intuitively appealing indicator. By first establishing the relationship between an intermediate measure and, ultimately, financial performance, the model acts as a filter for a manager to determine which possible indicators are adequate intermediate performance measures. Fourth, the framework is generic in many senses. It is not restricted to any class of marketing strategies nor to any level of effects. In section 2, we have distinguished between several levels at which marketing performance can be measured, from micro (an individual customer) to macro (a firm), and several levels in between. Our model



is generic in the sense that it can be used for various marketing strategies and it can also be applied to construct specific performance measurement models for each level.

## **7 Directions for further research**

The limitations of this study can serve as useful starting points for future research. For example, the application described in this paper was validated by estimating the linear relationships within the chain of effects. Although this is a common practice in marketing studies, it probably is a too simple representation of reality. There is ample evidence that in practice many relationships between strategies and performance, and also within the performance path model, are in fact non-linear. For example, the relationship between customer satisfaction and financial performance may, in general, be positive and linear. Still, Anderson and Sullivan (1993) have noted that providing incentives to employees to maximize customer satisfaction may actually be detrimental to the financial performance of a firm. A useful extension of this and other marketing performance studies will be to include non-linear relationships (e.g., diminishing returns). Such a framework will better match with managers' intuition, thereby enhancing managers' acceptance.

In this study, the model was operationalized by means of a number of subjective and relative performance measures. Based on the dimensions objective-subjective and absolute-relative, Table 1 identified three other categories of performance measures. Other studies may investigate whether chain of effects models can be constructed by using other categories of performance measures as well, and try to formulate guidelines about when to use which category of measures. As Styles (1998) has noted, besides what to measure, a key research issue remains how to measure performance.

The path model validated in this paper to show the viability of the conceptual HMP framework is actually one of the most simple forms of representing a chain of effects. Further research can be aimed at developing and validating some of the many variants

that are possible. For example, a strategy may lead to multiple distinct effects, each influencing a chain of intermediate performance indicators that ultimately and together result in a change of a financial performance measure. Another interesting question is how many intermediate levels a researcher should apply when modeling the chain of effect for a particular strategy. Our application contained four levels which seemed to be appropriate from both a theoretical point of view and a statistical point of view (the exploratory factor analysis revealed four factors), while it also matched with the number of levels in a conceptual performance model proposed by Rust et al. (1995). However, in general, there is no reason to assume that four is always the optimal number of levels. The more levels, the richer the description of the real world, because the more the black-box of reality is opened. On the other hand, the less levels the more attractive the model from a managerial point of view, because it limits the number of measures that have to be monitored. When deciding about the number of intermediate measures, the descriptive power of the model is an important criterion.

As stated above, the HMP framework is generic in several senses. Conceptually, it can be used for different marketing strategies, for measures at different levels of effect (from micro to macro), and it can incorporate different kinds of performance measures. Further research can be aimed at testing for these claims of being generic. Is it possible to develop chain of effects models for different marketing strategies? When are two marketing strategies more similar in the sense that their respective intermediate performance measures converge earlier in the model (as has been hypothesized in Figure 4)? Can generic chain of effects models be built for a category of marketing strategies? Is it possible to develop models at each distinguished level (from micro and macro)? Can these chain of effects models be aggregated into each other or do they have to be measured separately?

In this study performance has been modeled as a chain of effects. Although this way of modeling has distinct advantages, one may argue that a path model is not the best choice under all circumstances. Some marketing strategies may directly influence financial performance, making it unnecessary to include intermediate measures. Marketing strategies may also reverse the direction of the relation between two performance measures. For example, Hoch et al. (1994) compared the effects of pricing strategies on both sales and profits and they find that an 'everyday low price' strategy may lead to an increase in sales but to a decrease in profits. Future research can be directed at formulating guidelines about the optimal structure of the performance measurement model given the objectives of a study.

## **8 Conclusions**

This paper has extended our knowledge on performance measurement by introducing an Hierarchical Marketing Performance (HMP) framework that integrates the view that financial performance is the ultimate performance indicator for for-profit organizations with the notion that performance is a richer concept than just a single (financial) measure, and the belief that the effect of marketing strategies can be best modeled as a chain of effects. The application described in this paper provides evidence that it is possible to model the effect of marketing strategies as a chain of effects, including both various intermediate measures and financial performance. The intermediate measures can be used as early warning indicators for the ultimate financial measures. In this empirical study, the HMP framework was operationalized by means of a number of subjective performance measures. Their positive and significant correlation with objective performance once more underlined the suitability of perceptual performance measures as surrogates for objective measures. The HMP framework is generic in many senses. It can be applied for different marketing strategies, for performance measurement at different levels (from micro to macro), and it can include paths consisting of different lengths and of different levels of complexity. The model can also play a role in our joint search for the Holy Academic Grail: in order to develop a coherent and comprehensive body of marketing knowledge it is necessary to understand how the outcomes of various studies can be integrated and related to each other. Our model can be useful to combine the results of studies where researchers have focused on similar strategies but relied on different performance indicators.

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*Table 1: Examples of different measures that can be used to measure financial and/or intermediate performance.*

	<b>Absolute</b>	<b>Relative</b>
<b>Objective</b>	Sales, profit or ROI	Sales, profit or ROI compared to competitor or 'before' situation
<b>Subjective</b>	'How satisfied are you with ...'	'How satisfied are you with ... compared to competitor or 'before' situation'

*Table 2: Lowest inter-item correlation, Cronbach's alpha and item-to-total correlation*

<b>Latent Construct and Items</b>	<b>Lowest inter-item correlation</b>	<b>Cronbach's Alpha</b>	<b>Item-to-total correlation</b>
<b>Quality of Marketing Information</b>	0.5377	0.8094	
1. Better understanding of customers			0.6925
2. More reliable information			0.7032
3. Increasingly precise targeting opportunities			0.5887
<b>Outcome of Database Marketing Activities</b>	0.3572	0.8385	
1. Lower DM costs			0.5725
2. Higher response DM activities			0.6474
3. Less returned mailings			0.6456
4. Less wrong phone numbers			0.5442
5. More purposive DM activities			0.6572
6. Higher profitability DM activities			0.6460
<b>Customer Behavior and Perception</b>	0.3980	0.8397	
1. Higher customer satisfaction			0.6775
2. Higher loyalty			0.6881
3. Higher retention of customers			0.6115
4. Better image for customers			0.6893
5. Less irritation concerning DM activities			0.5574
<b>Subjective Business Performance</b>	0.7963	0.8861	
1. Higher turnover			0.7963
2. Higher market share			0.7963

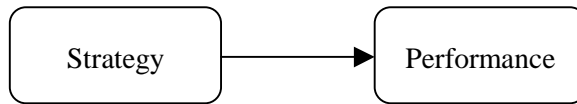


*Table 3: Construct correlation matrix, including 95 % confidence intervals*

<b>Construct</b>	<b>1.</b>	<b>2.</b>	<b>3.</b>	<b>4.</b>	<b>5.</b>
<b>1. Quality of Marketing Information</b>	<b>1</b>				
<b>2. Outcome of DBM Activities</b>	<b>0.652</b> [0.605, 0.695]	<b>1</b>			
<b>3. Customer Behavior and Perception</b>	<b>0.568</b> [0.513, 0.619]	<b>0.664</b> [0.618, 0.705]	<b>1</b>		
<b>4. Subjective Business Performance</b>	<b>0.401</b> [0.334, 0.464]	<b>0.510</b> [0.450, 0.565]	<b>0.666</b> [0.620, 0.707]	<b>1</b>	
<b>5. ROI</b>	<b>0.201</b> [0.125, 0.275]	<b>0.259</b> [0.185, 0.330]	<b>0.243</b> [0.168, 0.315]	<b>0.294</b> [0.221, 0.364]	<b>1</b>

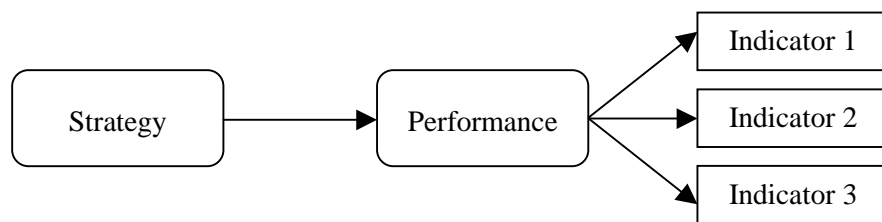
*Table 4: Factor loadings and fit statistics of the theoretical model*

<b>Latent Construct and Items</b>	<b>Factor Loadings</b>	<b>Fit Statistics</b>
<b>Quality of Marketing Information</b>		RMSEA = 0.073
1. Increased customer knowledge	0.86	RMSR = 0.049
2. More reliable information	0.90	GFI = 0.90
3. Increasingly precise targeting opportunities	0.76	AGFI = 0.87
		IFI = 0.93
<b>Outcome of Database Marketing Activities</b>		
1. Lower DM costs	0.67	
2. Higher response DM activities	0.74	
3. Less returned mailings	0.73	
4. Less wrong phone numbers	0.62	
5. More purposive DM activities	0.81	
6. Higher profitability DM activities	0.76	
<b>Customer Behavior and Perception</b>		
1. Higher customer satisfaction	0.78	
2. Higher loyalty	0.72	
3. Higher retention of customers	0.67	
4. Better image for customers	0.81	
5. Less irritation concerning DM activities	0.71	
<b>Subjective Business Performance</b>		
1. Higher turnover	0.97	
2. Higher market share	0.86	

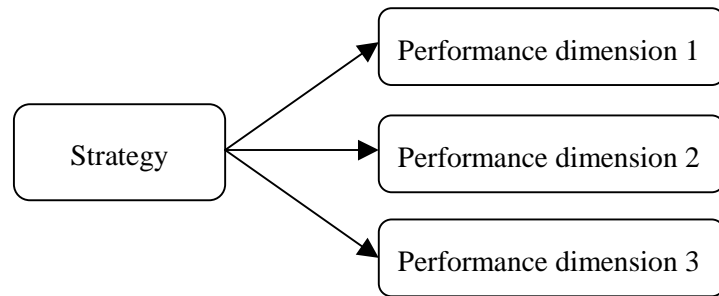


*Figure 1a: One 'most appropriate' performance indicator*

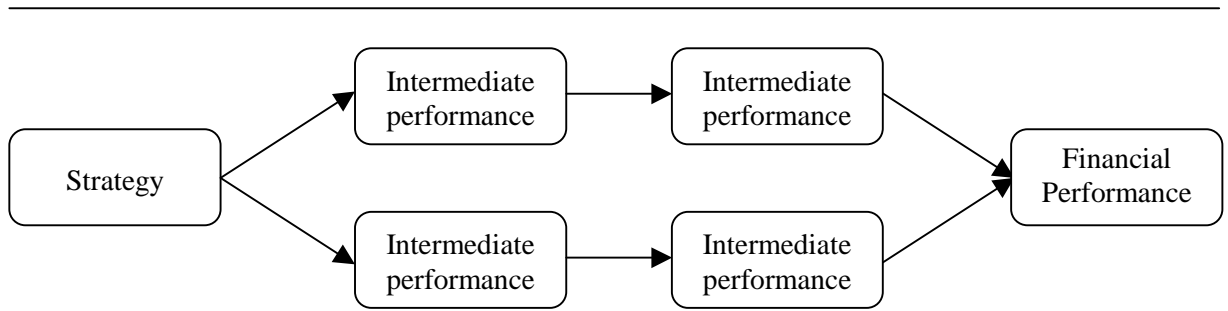
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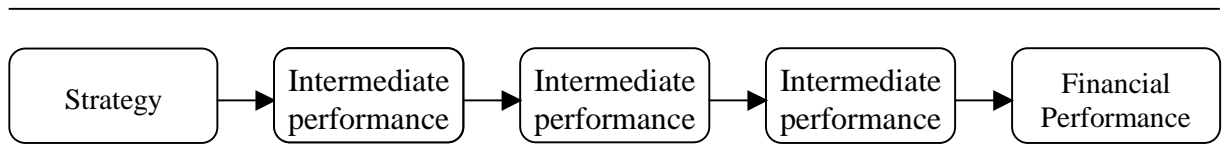
*Figure 1b: One 'most appropriate' performance construct*



*Figure 2: Performance as a multidimensional phenomenon*



*Figure 3a: Performance as a framework consisting of several related measures*



*Figure 3b: Performance as a framework consisting of several related measures*

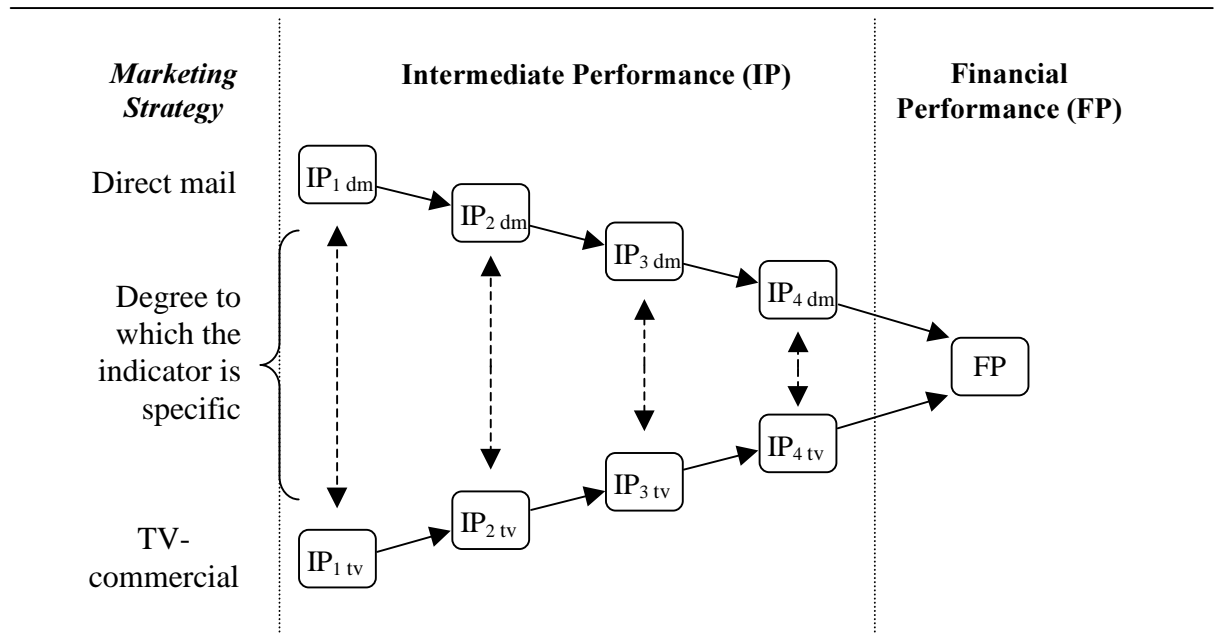


Figure 4: Generalized performance framework for direct marketing and tv-commercials

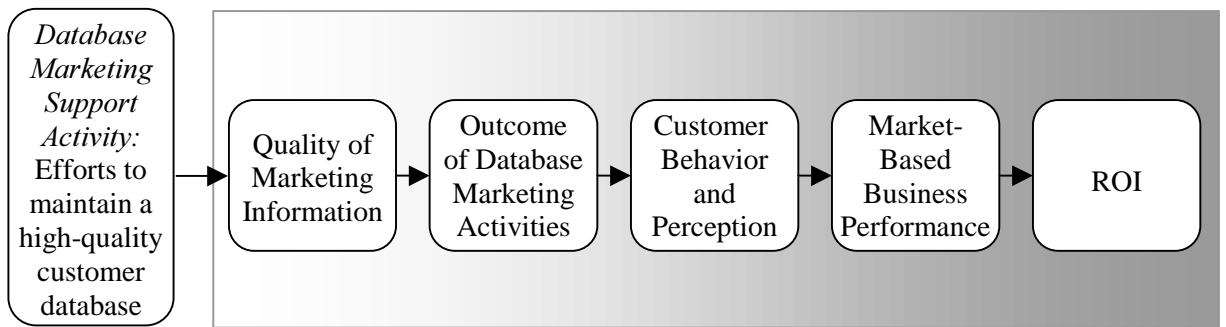


Figure 5: The structure of database marketing performance

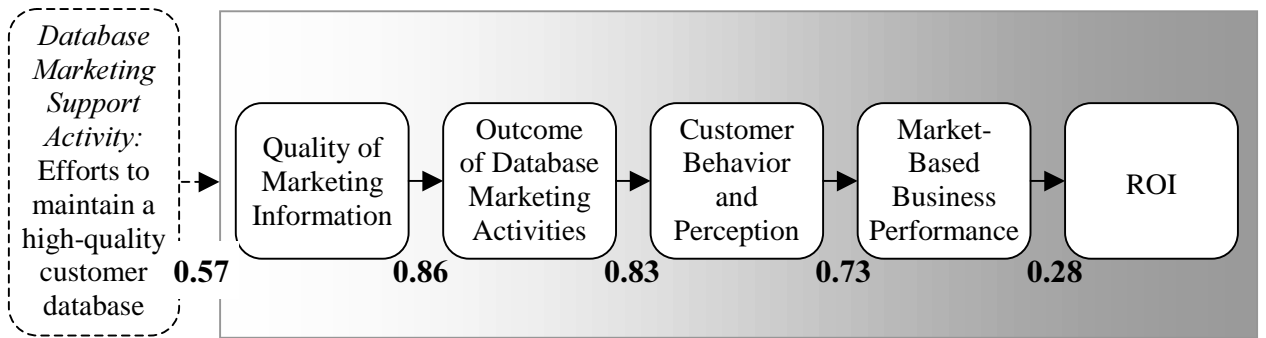


Figure 6: Path coefficients estimated in LISREL