12. CHOICE OF MEASURES FOR PERFORMANCE MEASUREMENT MODELS ON THE EXAMPLE OF SUCCESSFUL ESTONIAN COMPANIES

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Abstract

This paper examines the relationship between the usage of the performance measurement model (PMM) and successful development of a company. The quantitative part of the research was conducted by the author on the basis of a questionnaire survey of 72 Estonian small and medium-sized companies whose managers were asked about their performance measures. The goal was to reveal what was important for them and what kind of data they needed. The main results of the survey are the following:

1. Managers consider it extremely important to monitor financial accounting indicators.
2. The managers of successful companies value more highly observations of their customers' cost- and profitability-related data, as well as non-financial, quality-related indicators directed away from the company.
3. Important needs for information, notably regarding the degree of customer satisfaction and the characteristics of competitors, are not satisfied.

Introduction

The amount and quality of information available to managers of any organization is a good barometer of organizational health. Relevant information allows a firm to effectively describe and implement its strategy, guide employee behavior, assess managerial effectiveness, and provide the basis for rewards. (Malina and Selto, 2004; Simons, 2000)

A competitive success factor of the industrial era was mostly characterized by the management of tangible assets. Today, however, it has become important to manage intangible assets such as services, innovation, flexibility and knowledge (Speckbacher *et al*., 2003; Balcom *et al*., 1997). Moreover, companies are becoming more dependent on the environment. Fierce competition and globalization make it essential for companies to start to influence environmental elements and react as fast as possible to the environmental changes that cannot be affected. (Lebas, 2000)

According to contingency theory, the efficiency of any accounting system depends most of all on its ability to react and adapt to changes both inside the company and in its environment (Haldma and Lääts, 2002). Over about twenty years, the scope of management accounting has significantly broadened, now including both financial and non-financial measures (Kaplan and Norton, 1996; 2001a; Ittner and Larcer, 1998; Brignall and Modell, 2000; Vaivio, 1999). In addition, recent studies have more often started to stress the need to involve qualitative data in the managerial accounting information system (Ittner and Larcer, 1997; Gordon and Steven, 1999; Hoque and James, 2000; Kaplan and Norton, 2001b). This all-embracing conception of management control goes along with the reaffirmation of the behavioral aspect of management control systems (Antony *et al*., 1992) and of their contribution to organizational change and learning (Bourguignon, 2004; Speckbacher *et al*., 2003; Ittner and Larcer, 2001). PMMs are comprehensive models of firms as a system reflecting organiza-

tional knowledge of the relations among various value-chain performance measures. Reportedly, many organizations have created PMMs that model performance relations among key value-chain activities and valued outcomes. (Malina and Selto, 2004)

Organizational learning theory by Nonaka and Takeuchi (1995) and Senge (1990) predicts that successful firms create strategic advantages by dynamically learning to use their resources effectively. Accounting interpretation of current management theories is that firms create and maintain strategic advantages or positions by efficiently creating, deploying, and using the performance-based management control system. (Malina and Selto, 2004) The present paper empirically examines the relationship between the usage of the financial and non-financial data and successful development of the company.

Recent studies into the use of accounting information

Almost 80% of managers consider annual accounts to be very important documents (Ramos, 2000; Carsberg *et al.*, 1985; Barker and Noonan, 1996). As a rule, an income statement is valued more highly than a balance sheet in the management process (Ramos, 2000). Financial accounts are traditional and people are used to them. Although the financial measures are highly valued and used by managers, the managerial accounting literature also points out problems and threats. (Merchant, 1998; Johnson and Kaplan, 1987; Haldma and Lääts, 2002; Mendoza and Bescos, 2001).

Managers have become more aware of the changes based on new business models and environment. Their opinions indicate customer satisfaction, loyal personnel, product quality, service reliability, sales price, and research and development to be the most essential criteria for determining value. 95% of the respondents considered customer satisfaction important and 80% though loyal

personnel to be important. (Boulton *et al*., 2000; Groot, 2000). Mezias and Starbuck (2003) reached the conclusion that managers' decision-making is based on the reports results that reflect internal processes. At the same time, research has found that the strongest dissatisfaction is related to the outward environment information – customers and competitors (Mendoza and Bescos, 2001).

Therefore it can be said that critical success factors are known, however, not always measured. The reason for this as seen by the managers is the lack of a satisfactory assessment and measuring system, previous failed attempts to measure these indicators, and high costs of measurement and assessment. (Groot, 2000; Boulton *et al*., 2000; Bhimani, 2000; Barbato *et al*., 2000; Israelsen *et al*., 2000).

Recent research investigating the interrelationships between business success and the use of non-financial indicators has found that companies which use non-financial indicators in their performance measurement system (Ittner and Larcer, 2003; 1997; Hoque and James, 2000) share the following features:

- Significantly higher assets and capital productivity,
- A strong market position or attempts to improve it.

With regard to changes taking place in the business environment and models, there has emerged a requirement by the managers for accounting system that would reflect all important aspects of today's business environment.

Recent studies into the use of accounting information by Estonian companies

Several surveys carried out in Estonia confirm that financial accounts are valued highly by managers (Haldma and Lääts, 2002; Haldma *et al*., 2003; Hammer and Karilaid, 2002). Haldma

and Lääts have listed the following reasons for this (Haldma and Lääts, 2002):

- In the planned economy era, companies had no need to develop managerial accounting systems;
- The initial stage of the market economy era brought dramatic changes into financial accounting and the latter became more focused;
- Managers' and financial specialists' insufficient knowledge of and experience in managerial accounting.

Research results show fast managerial accounting development within Estonian companies in the late 1990s. 74% of the respondents from the biggest Estonian companies admitted that changes had occurred in their companies' managerial accounting systems in 1996–1999. These changes mostly meant improvement of the cost accounting system. It has been found that strong competition and training programs had a positive influence on these developments. (Haldma and Lääts, 2002).

The results of the surveys also show that major Estonian companies' managerial accounting is more oriented to functional subdivisions and product performance than observing the performance indicators of customer groups. (Haldma *et al.*, 2003). Therefore companies tend to focus more on their internal processes and relevant accounting instead of assessing outward effects.

The survey carried out by Hammer and Karilaid in 2002 studied the use of financial, non-financial and complex indicators by major Estonian companies. The most important measures in performance measurement decision-making were profit and its growth, turnover and its growth, market share, customer satisfaction, and cash flow (Hammer and Karilaid, 2002). In general, the managers said they were planning to focus on measuring customer and employee satisfaction, while profit and its growth, turnover and its growth, and liquidity ratios were among the measures which companies would be using less in the future. (Hammer and Karilaid, 2002).

The question about what criteria could be used for choosing a performance measurement method received responses such as “simple and understandable”, “simple from the viewpoint of owners”, “operative and objective”, “data availability”, etc (Hammer and Karilaid, 2002).

The present survey is more similar to that carried out by Hammer and Karilaid than to the survey conducted by Haldma and Lääts, because it includes financial, cost accounting and non-financial indicators. It differs from both of the abovementioned surveys because the present research sample represents small and medium-sized companies.

Objectives and methods of the research

The present research set the following tasks:

- To analyze the usage of financial and managerial accounting indicators by Estonian managers;
- To analyze linkage between business success and usage of financial and non-financial indicators;
- To analyze the relationship between business success, satisfaction with the current accounting information and additionally required information.

The empirical data of the present paper were drawn from the survey carried out in autumn 2002. The survey involved managers of 72 Estonian small and medium-sized companies. 100 questionnaires were sent out, 75 of which were returned (75%). Three had not been filled out in accordance with the requirements and had to be left aside. Such business sectors as wholesale and retail sale, production and services were represented (Table 1). In case of seven questionnaires, unfortunately, it was impossible to identify the field of activity.

Table 1. Companies by business sectors

Business sector	Number of companies	Companies (%)
Wholesale	25	34.8
Retail sale	16	22.2
Production	15	20.8
Services	9	12.5
Not identified	7	9.7

Source: Compiled by the author.

The questionnaire contained both open and closed questions and involved the following areas: 1) Financial indicators (net profit, revenue, amount of the balance sheet) change last year and the number of employees. 2) Financial and managerial accounting indicators collected and evaluated in managerial decisions. 3) Identify lacking accounting indicators.

The research analysis used typological, analytical and combined grouping, while the statistical analysis used one- and two-dimensional analysis and frequency analysis.

To determine a company's success, the parameters included questions about sales turnover, amount of the balance sheet, and profit change in the recent period. The responses were coded as follows: sales turnover, amount of the balance sheet, and profit growth were marked with "1", and the indicators' decrease with "–1"; the profit gained last economic year was denoted by "1" and loss by "–1". For calculating a company's success parameters, the total of each company's value scores was found. On the basis of the calculated success parameter, the companies in the sample were divided into two groups: successful and less successful.

Successful companies are those whose success parameter is between two and four. This group consists of 44 companies (61%), 35 (79.5%) of which showed profit in the last economic year, while eight failed to do so (Table 2). Profit growth was stated by

39 respondents of this group (88.6%), turnover growth by 40 respondents (90.9%), and balance volume growth by 29 respondents (65.9%). 26 managers (59.1%) of the companies in this group said that they had subdivisions.

Table 2. Responses by success parameters

Indicator	**Profit**			**Profit growth**			**Turnover growth**			**Balance volume growth**		
Marking	1	0	–1	1	0	–1	1	0	–1	1	0	–1
2–4	35	8	1	39	4	1	40	4	0	29	15	0
1 or less	17	5	4	1	19	6	6	16	4	4	21	1

Source: Compiled by the author.

Less successful are companies whose success parameter is 1 or less. This group comprises 26 companies, 17 of which gained profit in the last economic year (65.3%). Profit growth was shown by one respondent (3.8%), turnover growth by six respondents (23.1%), and balance growth was admitted by four (15.4%).

In order to analyze the use of financial indicators from the income statement the following were chosen: net profit, revenue, cost of goods sold, staff costs, other operating expenses, administrative expenses and distribution costs. As indicators from the balance sheet were included – cash holdings, accounts receivable, inventories, accounts payable, tax and salary liabilities. The research involved seven non-financial indicators that can be divided into two: indicators derived from financial statements, such as stock turnover, debtor days, and indicators not directly related to financial statements (delivery period, market share and customer satisfaction).

The questionnaire ran a question about the necessary indicators that were not included in the company information system. It was an open question and a respondent could express his/her opinions.

All the answers were analyzed by the author and divided according to their contents into five groups:

- Satisfied,
- Lacks analysis of current data,
- Needs additional data about the environment (competitors, market, etc),
- Lacks detailed costs and analysis of company's segments,
- Needs more frequent reporting.

Results

The use of financial indicators

According to the survey, the most highly valued financial indicators drawn from the income statement were revenue, net profit, staff costs, while those drawn from the balance sheet were accounts receivable and cash (Table 3). 93.1% of the respondents ranked revenue as the highest, while for 83.3% the most important indicator was net profit, for 66.7% – staff costs and for 72.2% – accounts receivable.

Table 3. The most highly valued financial indicators

Indicator	Rate of significance (%)
Revenue	93.1
Net profit	83.3
Accounts receivable	72.2
Staff costs	66.7
Cash	65.3

Source: compiled by the author.

Next, the difference in the observation of the income statement indicators of successful and less successful companies is presented. There appears to be a slight variation between staff costs

and other operating expenses (Figure 1). These indicators are highly valued by 70% of successful company managers and by nearly 50% of the less successful company managers.

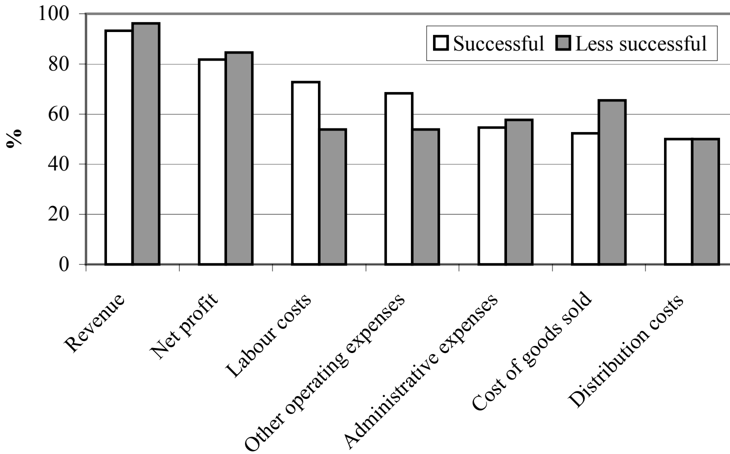

Figure 1. Assessment of the significance of income statement indicators by successful and less successful company managers (in %). (Compiled by the author)

Compared to successful companies, less successful companies' managers consider observation of the cost of goods sold as more important. Therefore successful companies' managers pay more attention to observing those costs that are more likely to be influenced by managerial decisions, whereas operational costs are more valued by less successful company managers.

The use of management accounting financial indicators

95% of the companies involved in the study have an accounting system that embraces various segments of the company. Regarding observation of management accounting indicators, nearly 70% of the respondents considered company subdivisions and product

indicators to be a very important source of information, whereas 60% valued customer-related information.

Comparing the use of the financial indicators of management accounting by successful and less successful companies (Figure 2), it can be seen that their subdivisions' costs and profitability indicators are more highly valued by the managers of less successful companies.

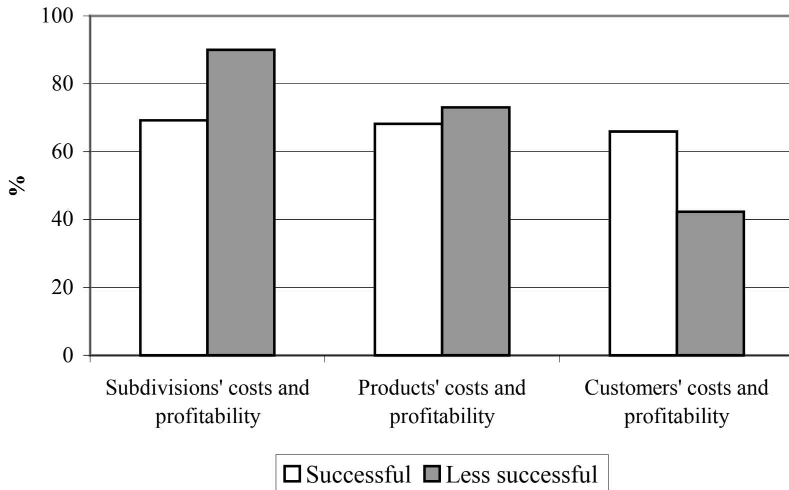

Figure 2. Successful and less successful managers' assessment of the significance of financial indicators in management accounting (in %). (Compiled by the author)

The managers of successful companies, on the other hand, consider customer-related costs and profitability indicators to be more significant. The variance between the two is nearly 20%.

The use of non-financial indicators

19.4% of the respondents failed to consider any of the given non-financial indicators important. The indicator ranked highest was

the observation of stock turnover (44.4%). Customer satisfaction, delivery period and debtor days were important for nearly 37% of the respondents, while market share was valued by 28%.

An analysis of how the managers of successful and less successful companies use non-financial indicators shows that by comparison with the managers of less successful companies, a larger number of successful companies' managers regard observation of non-financial indicators as important (Figure 3).

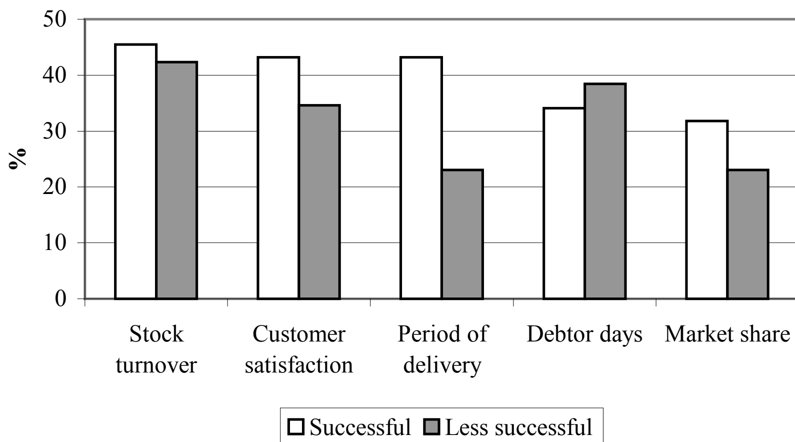

Figure 3. Assessment of the significance of non-financial indicators by successful and less successful company managers (in %). (Compiled by the author)

The differences are most significant in case of delivery period, customer satisfaction and market share. These are the indicators, which have outward orientation and also reflect quality.

Additional data required by the managers

Questions about the need for additional data were answered by 22 respondents (31.4%) (Table 4). It turned out that successful company managers were more active in sharing their opinions

about dissatisfaction and lack of data than less successful company managers. 17 managers from the successful company group (38.7%) expressed their opinions, while only five less successful company managers (19.2%) answered this question.

From all the respondents answering the questions only seven (31.8%) were satisfied with the information received from their accounting system. Successful company managers were more satisfied (6 respondents), but from the less successful companies group only one respondent expressed the same view (Table 4).

Table 4. Answers to questions expressing satisfaction with the accounting systems based on an enterprise's success and growth (in %)

	Total		**Successful**		**Less successful**	
	%	**No of respondents**	**%**	**No of respondents**	**%**	**No of respondents**
Expressed opinions	31.4	22	38.6	17	19.2	5
Satisfied	31.8	7	35.3	6	20.0	1
Needs external information	22.7	5	17.6	3	40.0	2
Needs data analysis	9.1	2	0.0	0	40.0	2
Needs segment accounting and analysis	36.4	8	41.2	7	20.0	1
Needs more frequent reporting	9.1	2	0.0	0	40.0	2

Source: Compiled by the author.

The need for segment accounting and analysis was the most frequently mentioned issue (36.3%), followed by the need for more

externally derived data (22.7%). The total number of respondents who lacked more detailed information about the segments and relevant analysis was eight; seven of them were managers of successful companies and one belonged to the less successful group. Less successful company managers complained more about the lack of general data analysis. Five respondents said they lacked externally derived information such as:

- Customer satisfaction,
- Competitors' sales turnover and costs,
- Objective information about market share,
- Relevant and reliable statistical data that can be compared with own data.

Conclusions and discussions

The current research focused on studying the use of information by the managers of Estonian small and medium-sized companies. The survey confirmed the results of earlier studies, which have determined that managers value financial indicators highly in their management process. Additionally, the current research results show that accounting information is handled differently by successful and less successful company managers.

The more frequent use of financial indicators can be explained by the managers' functions such as, for example, company strategy development. Another reason can be the managers' strong orientation to profit, which is often based on the motivation system that values profit indicators above all. The managers consider financial indicators to be clear and easy to understand which in turn reflects the need for continuous training that would make managers accustomed to seeing alternative indicators as well, e.g., customer effectiveness and non-financial measures.

On the grounds of the recent research carried out in Estonia it can be said that cost accounting has been greatly developed by both large and small-sized companies. In 2002 most of the companies

had internal cost accounting elements. Further development should lead to quality improvement because research done in other European countries show that companies are mostly satisfied with their internal cost accounting and analysis. Therefore, if the main issue for industrial countries is integration of various databases and their relevant analysis, then Estonian companies have to work more on improving their existing cost accounting systems.

However, non-financial indicators can provide even more information for making management decisions as they may better reflect the factors affecting financial indicators. For example, stock turnover, a non-financial indicator that is derived from financial accounting, is still less frequently used than the indicator of financial accounting. A similar relationship can be found between the observation of accounts receivable and the collection time of accounts receivable (debtor days).

Research has established that the indicators reflecting internal processes are more often observed than those reflecting processes related to customers, suppliers and market, or concerning both: the monitoring of financial and non-financial indicators. There can be several reasons for this. Firstly, the traditional accounting model focuses primarily on describing internal processes within a company. The second reason can be that managers and accounting specialists have had little time to get used to the modern business models which are oriented to cooperation between companies, fast reaction to market changes and flexible treatment of customer needs.

Successful company managers were generally satisfied with the existing information system, but at the same time they also saw developmental possibilities. As other researchers have pointed to the lack of external information, it can be said that while the lack of external information is recognized, the lack of internal information is even bigger. Consequently, although successful company managers are using more environment-related information,

they want the accounting system to develop reflecting both the internal processes and environmental aspects.

As a result of the present research, the conclusion can be drawn that in the future the accounting system of the Estonian companies will include more data, i.e. the companies' internal segment accounting will become more detailed and more indicators reflecting environment-related information will be collected. The latter will increase the role of analysis and higher-level abstraction. As a result of information systems integration, a growing amount of various data can be included into the accounting system, which means that both more well-trained and experienced accounting specialists able to analyze the data, and more up-to-date information technology will be needed.

Limitations and suggestions for future research

The objective of the current study was to find the relationship between the performance results of a company and the use of accounting information. The current research tapped a relatively small sample; it does not use any scales of significance and its results were based on yes/no answers. Therefore in the future a new research should be carried out, involving a bigger sample and using significance scales for measuring importance and satisfaction. Moreover, the relations between the use of particular indicators and the reasons for that should also be found out. The present research analyzed but did not bring forth the relations between a company's size, its line of activity, its manager's educational background and use of non-financial indicators. Therefore the latter relations were not studied in the framework of the current research. In the future all of the above aspects should be tested on a bigger sample.

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