



Linking strategy into operational management

Linking strategy into operational management

A survey of BSC implementation in Finnish energy sector

701

Harri Haapasalo, Kari Ingalsuo and Timo Lenkkeri

*Department of Industrial Engineering and Management,
University of Oulu, Finland*

Abstract

Purpose – The purpose of this paper is to find a means of connecting strategic management and operative performance measurement.

Design/methodology/approach – The paper focuses on the balanced scorecard (BSC), its levels of use and utilization, the influence of specific features, the most used metrics and features of successful implementation of the BSC in the energy sector. The paper is based on empirical interviews with 16 locally operating energy companies and business units of larger corporations. BSC is a wide spread strategic management system which originated in the early 1990s. The aim of the BSC is to facilitate in depth discussion about a company's vision, strategy and critical success factors and translate them into specific measures and objectives in action.

Findings – The study shows that maintaining a vision and a strategy has not been very prevalent in Finnish electricity companies. However, the deregulation of the energy markets in Finland, from the mid-1990s, has increased the competition and made maintaining a strategy all the more important. Adjustment to this deregulation and the large number of different businesses are special features of the electricity sector. It can be concluded that benchmarking on other industries, where BSC has been in use, leads to better results faster in the energy sector. However, it has to be noted that strategy and management have to be seen as a unique set of activities. In the construction phase of the BSC, the process of searching for the metrics is more important than finding them.

Originality/value – The paper offers insights into linking strategy into operational management.

Keywords Strategic management, Business development, Performance measures, Balanced scorecard, Energy industry, Finland

Paper type Research paper

Introduction

Background

Changes in competitive environments have increased the importance of strategic management in corporations. Successful companies must be able to anticipate changes in operative environments and be able to react faster than their competitors (Kaplan and Norton, 2001). This raises the question: what is the right strategic direction for a company at each moment?

Kaplan and Norton (1992, 1993, 1996a, b) developed the balanced scorecard (BSC) concept early in 1990. Lillrank (2000) regards BSC as one of the most important inventions in the field of management in the last decade. It consists of the idea that effectiveness cannot be measured only in monetary terms – as a reversing mirror. To date, BSC seems to have been successful and more and more companies are starting to use it. Although BSC seems to have a central role in performance measurement, there is



great diversity in the field too (Neely, 2000). However, according to McCunn (1998), and Bourne *et al.* (2003) most of the BSC implementations fail somehow.

The Finnish and Scandinavian energy sectors are currently undergoing major changes. Deregulation in the early 1990s, privatization, market factors, internationalization and supranationality have all changed the business environment. Earlier energy production and transfer were part of government control and operated regionally in a monopolistic way. Management based on political decision making does not work today. The Nordic countries currently form a market based on free competition, and other European countries are also opening their markets. These conditions increase the challenges for companies in the energy sector, in which companies are improving their internal efficiency through strategic positioning (Hernesniemi and Viitamo, 1999; Turunen, 1996; Riskula, 1996). These companies, therefore, need means with which to assess, develop and implement strategies effectively.

Research questions and research methodology

In this scenario, we have carried out a qualitative study of the Finnish energy sector. The purpose of the study is to find a way to connect strategic management and operative performance measurement. Furthermore, the usability and applicability of BSC have been studied. We divide our objectives into four separate research questions:

RQ1. What is the level of use and utilization of BSC in the Finnish energy sector?

We aim to find out, how widely BSC is applied, in what way it is utilized and what are the experiences:

RQ2. What is the influence on the energy sector of specific features of BSC use?

We analyze the differences in main stream utilization of BSC and present some specific features related to the energy sector:

RQ3. Compile a list of the most used metrics in the energy sector.

The original idea was to create a sample metric list for the energy industry:

RQ4. Finally identify the features of successful implementation of BSC in the energy sector.

Based on experiences from practical implementations.

In our survey the approach was on BSC and its implementation from an organizational management point of view, especially in the Finnish energy sector. We studied, in total, 16 companies or business units operating in energy production, electricity selling and in network operations (transferring electric and/or heat).

In practice, when conducting the survey our preliminary assumption was that the Finnish energy sector is more responsive than the average sector because of these changes. In Finland there are about 100 companies in the energy business. Most of these have operations in several fields such as in energy production, network operations, electricity acquisition and selling and so on. In our study, we interviewed 16 companies in order to identify the practice. Companies were selected randomly, although in an attempt to include different fields in the selection in order to have a more comprehensive understanding of the practice (Figure 1).

The interviews were semi-structured and the questions were presented like discussion topics, containing some more accurately defined questions towards the research questions. The topics in the interviews were as follows: current images of BSC, the construction and implementation process of BSC, the strategic goals of BSC, setting the goals, metrics and perspectives in BSC and general comments concerning the implementation process. The material gained from the interviews was analyzed for each research question. In order to obtain a more profound conception of the utilization of BSC – more accurate in-depth case interviews were made for two local energy companies. In the end, the material was analyzed as a whole in order to compile the features of successful implementation of BSC in the energy sector.

In the scope of this study BSC is understood as a synonym for BSC or balanced score table for performance measures. BSC is also understood as balanced measures, success factor measures, scorecard and also performance measures (Olve *et al.*, 1998). BSC implementation varies and can cause some misunderstandings. It is often understood as planning the metrics, building the system and adopting the scorecard in practice, which is the scope of this study. Sometimes implementation is misconstrued as the final phase only, whereas planning and building the metrics are seen as separate parts of the project. Before implementation the feasibility study containing investment planning and investment decision making are part of the whole BSC process, but they are not in the scope of this study.

Theoretical basis for BSC implementation

Importance of strategy

Strategic management in not only defining important issues in an organization, but also ensures that they are implemented too (Johnson and Scholes, 1999). BSC is one possibility for communicating and implementing the strategy. BSC facilitates an outline of the strategy and provides a frame for strategy discussions before implementation of the strategy (Kaplan and Norton, 1996b, 2001; Malmi *et al.*, 2002; Murray and Richardson, 2000; Olve *et al.*, 1998).

Development of a performance measurement system includes the vision and strategy, the goals of the different views, critical success factors and the metrics. The critical success factors are knowledge, skills, capabilities, resources, features and activities through which the company prospers (Toivanen, 2001). They link the goals of the organization to the strategies (Figure 2). Rummmler and Brache (1995) also present connections between the vision and practical metrics for improving the performance at

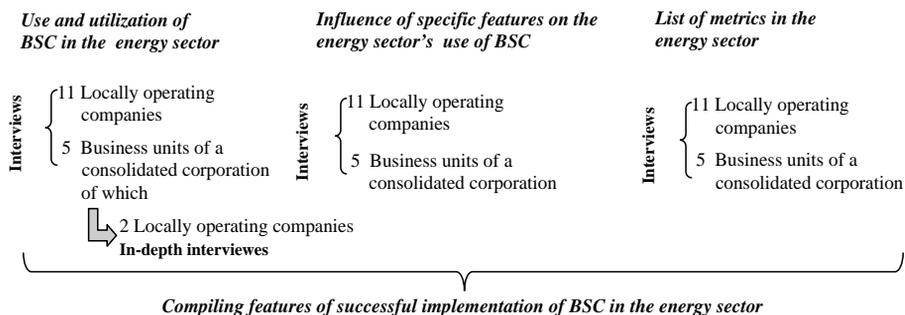


Figure 1.
Empirical research process towards research questions of this study

operative level. They present one kind of matrix for nine performance variables (performance needs vs levels of performance) in linking strategy and operations. Kaplan and Norton (2003) have presented “strategy maps” for describing the causes and effects as one possibility to strengthen this link.

The key words for strategic planning can be found in the literature as follows: “continuous”: the strategic planning is ongoing; it does not end with the publication of a plan; its success depends on it being a never-ending cycle; “systematic”: any strategic planning process has a deliberate and specific methodology and a sequence of events; it is not haphazard; “process”: the value of strategic planning lies more in the journey than in the destination. While strategic planning does produce a product – a strategic plan document – the primary value comes from the teamwork, vision and commitment gained through the process of making the decisions the document contains; “people”: the process must involve the right people, and those people must be ready to contribute to the process; “decisions”: strategic planning is a decision-making process. The only organizations ready to plan strategically are the ones whose leaders are ready to make decisions. “outcomes”: strategic level planning addresses external results, or the organization’s effects on the outside world, particularly how it affects its customers; “If you don’t know where you’re going, any road will take you there”: strategic planning is primarily about defining where “there” is, the outcomes and results that will occur at the end of the road; “how outcomes are to be accomplished”: never give up just because you defined the target future; go ahead and select the road that will get you there; “how success is measured and evaluated”: strategic planning is about succeeding. A well-written strategic plan will describe clearly whether the organization is successful. The plan may measure intended future outcomes either quantitatively or qualitatively, but it always defines threshold criteria for achieving success (Ansoff, 1981; Johnson and Scholes, 1999; Kaplan and Norton, 1996b; Mintzberg, 2000; Porter, 1998; Taylor and Graham, 1992; Whittington, 2001).

Performance measurement

Critical success factors at the strategic level must be linked clearly to the business processes, or more likely the real business drivers are necessary for effective performance measurement (Camp, 1994; Donovan, 1999; Olve *et al.*, 1998; Rummler and Brache, 1995). Performance measurement is used for both control and improvement of activities. Measurement enables increased visibility of the quality and progress of a certain task. Measurement helps to justify, manage, and evaluate quality and productivity improvement programs. Measurement goals are also as much about communication as they are about evaluation and targets. In order to achieve all the benefits, measurement must be applied systematically (Pulford *et al.*, 1996). To obtain the best performance, best practices and processes are needed. Metrics for these should indicate how well best practices are in place and being used (Baully, 1994; Camp, 1994).



Figure 2.
Metrics development
process

Source: Olve *et al.* (1998)

The Goal Question Metric (GQM) is one way of linking strategy to operational management. It is based on the assumption that goals must be first specified, then trace these goals, and finally provide a framework for interpreting the stated goals. A GQM model is a hierarchical structure (Figure 3). It has been developed to identify quality and productivity goals. Goals are based on the object of measurement, the questions are derived so that they define those goals as completely as possible. The next step consists of specifying the measures that need to be collected in order to answer those questions. After the measures have been specified, there is a need to develop the data collection mechanisms, including validation and analysis mechanisms (Basili *et al.*, 1994; Maleyeff, 2003).

Judson (1990) was one of the first who introduced the performance pyramid (Figure 4). Lynch and Cross (1992) developed it further. A pyramid of objectives and measures ensures an effective link between strategy and operations by translating strategic objectives from the top down, based on customer priorities, and measures from the bottom up. Dynamic performance measurement system (DPMS) is based on

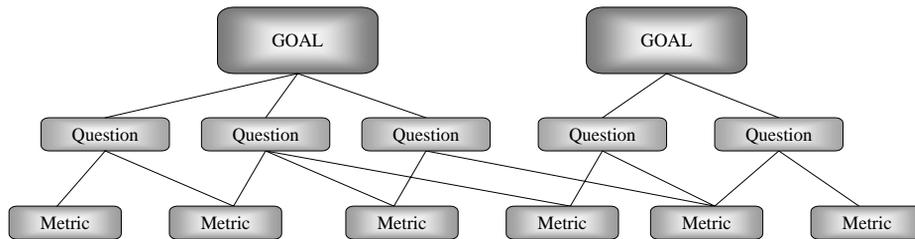


Figure 3. Hierarchical structure of GQM – linking strategy (goal) to operational management (metrics)

Source: Basili *et al.* (1994)

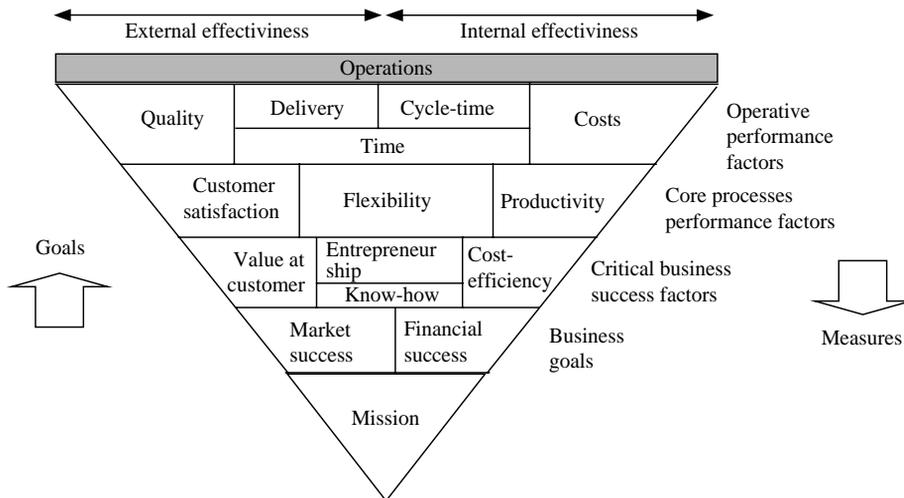


Figure 4. Performance pyramid

Source: Hannus (1994)

the company's internal cycle of resources and principle of continuous improvements. DPMS includes two dimensions of external performance: financial performance and competitiveness, and five dimensions of internal performance: costs, production factors, activities, products and revenues (Jungman *et al.*, 2004; Laitinen, 1996, 2001).

At operative level short-term performance measurement is used for guidance, control, managing quality, etc. In proportion long-term strategic issues are in focus, and performance measurement has a dual role in implementing and updating strategy, but also benchmarking it. At operative level, the benefit-burden ratio of a measure is critical, but also on the strategic level measures should have high practicality in utilization (Camp, 1994; Jungman *et al.*, 2004).

Structure and utilization of BSC

Original BSC consists of four perspectives. These perspectives permit a balance to be struck between the short- and long-term objectives, between desired outcomes and the performance drivers of those outcomes, and between hard objective measures and softer, more subjective measures. The original Kaplan and Norton's perspectives are (Sharif, 2002):

- *Customer.* How are we perceived by our customers (as of today)?
- *Internal business process.* What core competencies do we possess and what can be developed (from today)?
- *Learning and growth.* What is the capacity for the organization to learn and grow (into the future)?
- *Financial.* What is the impact of performance on shareholder value (in a historical sense)?

Additional perspectives could be human resources, the environmental and supplier perspectives. These can be included in the original perspectives, because the content of the original ones varies too. Marketing-oriented metrics can be included in the customer and financial perspectives, and customer perspective can contain supplier metrics. Innovation processes are included in internal-business-processes, and could even be included in learning and growth (Kaplan and Norton, 1996b). In some presentations learning and growth is called innovativeness and learning (Olve *et al.*, 1998).

Every measure selected for a scorecard should be part of a link in the cause-and-effect relationships that represent a strategic matter for the business unit

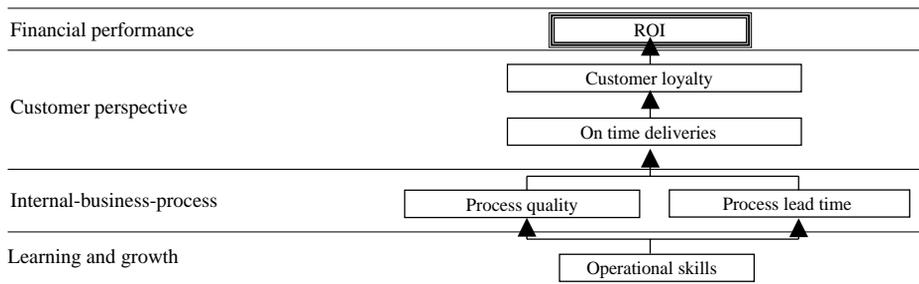


Figure 5.
The chain of
cause-and-effect
relationships through the
BSC perspectives

Source: Kaplan and Norton (1996b)

(Figure 5). Used this way, the scorecard is not a group of isolated, unconnected, or even conflicting objectives (Kaplan and Norton, 1996b). Furthermore, it connects the operational tasks to the long-term targets of the company – to be successful in monetary terms. However, it seems that financial measures are the ones that are utilized in most companies and non-financial aspects are partially measured, but often they are not an integral part of the monthly or annual reporting (Kueng, 2002).

Utilization of BSC can be divided into two main purposes. At first a measurement system can be an operative monitoring system or a strategic management system. The purpose of use defines the selection of the level of implementing BSC. If BSC contains a lot of metrics it easily turns in a monitoring system, but when keeping the number of metrics low it can be used as a management tool with strategic purposes. BSC projects implemented in Finland contained the following purposes of use (Toivanen, 2001):

- equalization of management systems;
- achieve change;
- concretize strategies at operative level;
- improve corporate management;
- improve efficiency;
- create unified goals for the organization and effective allocation of resources; and
- communicate strategies to the organization.

Implementation process of BSC – how to build BSC

BSC is a tool to communicate and control the implementation of strategy. When implementing BSC you can actually implement strategy at the same time. Different process models aim to describe clearly the steps in the implementation (Table I). BSC can be implemented in many kinds of organizations and every organization has its own special features during the process. A generally applicable process model is difficult to present, and every organization has to find, select and build a suitable method and steps for its own use.

To select metrics for BSC requires a considerable amount of work. Building BSC and metrics selection cannot be delegated to one person. Neither is it enough that old metrics are classified according to new perspectives (Kaplan and Norton, 1996b; Olve *et al.*, 1998; Toivanen, 2001). However, benchmarking seems to be a useful tool (Camp, 1994). According to Kaplan and Norton (1996b), a typical project to start up BSC utilization requires four months. There should be one single process owner, but the company management needs to participate actively (Laitinen, 1998).

Every project model (Table I) has a lot of common features. They emphasize the importance of clear strategic objectives, cause and effect relationships between strategy and measures and management commitment to the implementation process. The process manager of the BSC implementation should have a clear understanding of the meaningfulness of the whole implementation process and its steps (Kaplan and Norton, 1996b; Olve *et al.*, 1998; Toivanen, 2001).

A weaknesses of Kaplan and Norton's (1996b) model has been its origins in an American business culture and its usability for large companies, such as the selection of an appropriate organization unit. In addition, the model has been developed firstly as a follow-up and controlling mechanism – later it has been changed more to management system. The model has also been criticized in so far as it underestimates

	Kaplan and Norton	Olve, Roy and Wetter	Toivanen
	Select the appropriate organization unit	Define the business sector and company's position there	Clear decision to start BSC implementation project
	Identify SBU/corporate linkages	Define or specify company's vision	Emphasize management role during the implementation process
	Conduct first round of interviews	Choose perspectives	Clarify company's vision and strategy
	Synthesis session	Vision's proportion to the different perspectives and formulate general strategic objectives	Definition of critical success factors
	Executive workshop: first round	Define critical success factors	Target setting and definition of measures
	Subgroup meetings	Design measures, define cause and effect – relationships and seek balance	Engagement of organization
	Executive workshop: second round	Define company level measurement system	Cutting down and fulfilling the measures
	Develop the implementation plan	Measures and measurement system adjustment to different parts of organization	Measurement system adjustment to different parts of organization
	Executive workshop: third round	Set targets	Development of implementation plans to reach targets
	Finalize the implementation plan	Develop implementation plan	Development and continuous improvements to the measures and measurement system
		Maintain the measurement system	

Table I.
Models for building and implementing BSC

Sources: Kaplan and Norton (1996b), Olve *et al.* (1998) and Toivanen (2001)

the role of the company's personnel. If the model does not consider the employees during the BSC implementation process, the employees' commitment to the process is slight. The model could also be too cumbersome to implement and it could be too management oriented. The two other models emphasize the significance of the cause and effect relationships and the number of measures. Both of these are critical success factors during the BCS implementation process (Malmi *et al.*, 2002; Toivanen, 2001).

Olve's model seem to be more specific and practical than Kaplan and Norton's process model. Olve's model emphasizes several perspectives and overlooks the importance of strategy work and the link between strategy and measures (Malmi *et al.*, 2002). Toivanen (2001) has developed his model more from the perspectives of Finnish companies. He has developed his own model by framing Kaplan and Norton's ideas. The model focuses on a specific decision to start a BSC implementation project, a fast implementation project and an accurate implementation plan.

Implementation of BSC in the Finnish energy sector

Some features of deregulating in the Finnish energy sector

Liberating energy markets in Finland is being done for three main reasons. Firstly, because of a global shift towards privatizing state industries and move towards free competition, because of the evidence of increasing efficiency. Secondly, there has been a trend to free energy markets in other Nordic countries and form a Nordic energy

exchange – Nord Pool. Thirdly is the increasing liberation of European energy markets, of which Finland needs to be part (Kopsakangas-Savolainen, 2002). The target of the statement made by European Commission in year 2001 is to liberate electricity and gas markets completely by the end of 2005 (KTM, 2002).

Changes in the energy sector are relatively slow compared to other industries. Operations are ongoing, investments are expensive and planning time is long. This deregulation has created a totally new situation as it shortened the planning time and caused insecurity. Electricity can be bought anywhere, competition for customers is growing, and the strategic position in the markets can change quite fast.

In the future customer needs will be emphasized more in service and operations. Ability to compete can be maintained only while recognizing those customer needs and adjusting operations to fulfill these needs. Although the needs can change by customers and segments, the general requirements for service are fluency, smoothness, quality and customized sensitivity and flexibility, customer by customer. Furthermore, as total consumption is important for customers, companies can compete guided by consumption, savings and so on (Rännäri, 1996). Customer orientation will be emphasized such as competitive factors and costs, reliability and lead time will be more significant. The structure of the energy sector may change towards fewer and bigger players (VTT Energy, 1999). Then it would be reasonable to benchmark in the developing industry as a whole (Magd and Curry, 2004).

Changes in markets have complicated operative and strategic work in developing alternatives. The speed of change in operative environments is increasing and companies must reorganize and develop its operations. This requires agility and flexibility in order to create new services. Insecurity can be eliminated by developing forecasting systems and risk analysis tools. Scenarios and forecasting are extremely important, because of the foundational and central role of energy production, but this may be difficult because companies often have to consider stakeholders' positions. For example, in Great Britain some energy companies have faced severe problems because investors require profits in the short-term (Rännäri, 1996).

Use and utilization of BSC in the energy sector

According to the findings, BSC has received wide support in the energy sector, 82 percent (9/11) of the locally operating companies reported having either metrics in use or were in the process of creating them. The study concerned one big corporation and its five business units. One of those had BSC in operation and two of those were planning to implement it. So the total percentage of BSC utilization is 62.5 percent (if business units are counted as companies). Compared to the study of Toivanen (2001), 500 of the biggest companies in Finland (60 percent) implement BSC, and it has a relatively larger number of advocates in the energy sector than other sectors. One of the reasons may be that the deregulation of energy markets in Finland has happened in a period when companies have been forced to re-evaluate management systems.

Updating the vision and strategy has not been actively done in the energy sector and in a monopolistic situation it has not been a condition for survival. However, deregulation has created tight competition especially in electricity sales, when all possible means are needed at managerial level too. In several companies, the strategy has not been defined properly, or in some cases defined at all, before the BSC implementation. Thus, one of the most important reasons for BSC implementation has

been the possibility to specify a strategy or implement practical solutions to achieve strategic goals. Therefore, BSC implementation has often happened in a situation where strategy has confronted great changes. Deregulation strategies were regarded more as a loose collection of words. Other reasons for introducing BSC were inadequate financial metrics, and a difficulty in sifting through all the information in an attempt to find crucial data. The duration of BSC implementation projects and the view of BSC as “hype” were reasons for avoiding them. Surprisingly, BSC was an unknown concept in one case among senior management. As a whole it seems that the companies in the energy sector are using BSC in strategy creation, while others usually utilize BSC in implementing strategy and communicating strategic objectives to members of the organization.

Generally, performance measurement was seen as a good way to control business, implement strategy effectively, measure the success continuously and receive feedback on the strategy. All of those who had a BSC system in place were positively satisfied with the system. If there were problems they were merely related to the creation of a strategy or vision, applicability of those, or ineffective use of the company’s own activities.

In order to understand more about the utilization of performance measurement in the energy sector, two case studies of BSC use were carried out. Both of these in-depth cases used measurement systems of their own creation. Company A followed the basic perspectives of Kaplan and Norton, and company B created its own perspectives in order to reflect specific features of the energy sector. Both implemented the system during the normal development in company. However, company B realized the implementation more as a project and the whole personnel was taking part in the project with some help from consultants. Existing project models (Kaplan and Norton, 1996b; Olve *et al.*, 1998; Toivanen, 2001) were not used in either of the companies.

During the implementation both companies confronted some change resistance, but this was handled with careful management. Company B succeeded very well in its implementation, its metrics were informative and are currently used in the daily operations of the company. In company A, management level only uses metrics and the system has not yet achieved a central position, but the purpose is to expand the utilization. As in other development projects, the commitment of the company management was seen as a corner stone.

Company B had software support in place from the beginning of the implementation. In contrast, company A had been running the system for a few years without computer assistance, but they had acquired one and were planning to implement it. Both considered computer assistance a significant help in using the system and company B found the computer system useful even in the creation phase. Both of the companies had several computer systems in control and management and, therefore, computer utilization ought to have been uncomplicated. Both companies found similar issues difficult, e.g. to find suitable metrics for BSC; defining the relations and root-causes were also difficult. In these two areas, company B reached its goals better than company A. One reason was it had a more accurate project model in implementation, and another was the help of a consultant.

Influence of specific features in the energy sector in BSC use

Typical features have an influence on the main purpose of use or application. Almost all energy companies focus on cost effectiveness, because differentiation is difficult and

customers seek the lowest price. All the companies seemed to have almost similar competitive strategies, in place for a long time. Operations were thought to be already relatively effective and there was no need to implement new strategies for the purposes of BSC.

BSC has certain purposes in the implementation and specification of strategy, but its role is not as important as it is in other areas, where strategy is not as unambiguous. However, the role has been significant during the deregulation. The energy sector in the long-term is quite static and changes are relatively easy to foresee. On the other hand, strategy on cost effectiveness does not have as high a significance as it does, for example, in differentiation. Another specific feature is that investments are large and time lines are quite long.

Because of the deregulation and internationalization greater business complexes are formed, e.g. in fusions. BSC can be used to unify the new management systems. Parts of the companies in industry emphasize different differently issues, when the goals of different units are unique. This, however, influences the structure of the whole measurement system and purpose of use.

In the energy sector, the product is uniform and strategies are clear, because of stable operative environment. Then, the internal development of an organization is emphasized in utilization and development of measurement system, which can improve the internal communication, participation and commitment inside the personnel. Metrics can be used in developing organizational learning and in increasing motivation. The BSC benefits are in the form of a managerial tool, such as the balance and modernization of operations.

Specific features of the energy sector have an influence on the structure of measurement system, because the stability of the industry metrics are static and good metrics are replaced rarely. This seems somewhat surprising, when the industry is still under "shock" of deregulation. The metrics between companies seem to be quite similar, because they measure similar issues. Low costs and effectiveness are the critical factors of success.

Companies in the energy sector have selected different perspectives to the traditional Kaplan and Norton ones, e.g. the environmental perspective, interest group perspective, security perspective, production perspective and capacity perspective. Reasons for these can be to tighten environmental regulations, for their central significance to production, and the supervision of public authorities. The structure differs also because of the differences in business areas in the energy sector, e.g. in electricity sales and in network operations the business environment is quite different. Competition has become increasingly stronger and, therefore, reliability in delivery and customer relationship management has become more important, which will have an influence also on the metrics level. Specific features of the energy sector have or more likely should have an influence on the implementation of BSC. It would be reasonable to start the implementation in organizational level where competitive strategies are defined.

Fusions and acquisition of smaller companies have also influenced the use of BSC. Maintaining and achieving management commitment for implementing or utilizing BSC may be challenging, as management changes. On the other hand in this kind of business change, the environment is propitious for implementation and facilitates it. However, the basic principles of BSC implementation have to be kept in mind, personnel have to be a part of the early phases in order to increase commitment and

remove change resistance. The wider the organization is the more this is important, as in the case of most companies in the energy sector.

The energy sector already utilizes many kinds of information systems so it is reasonable to utilize those in implementation too. Some of the metrics in scorecard can be updated from operative systems, which usually require additional software application for measurement. However, this makes implementation and utilization more specific, and may affect the degree of utilization too and realization of benefits.

According to this survey, implementing the scorecard was not very problematic. Finding the adequate metrics and defining their root causes and relationships was considered the most difficult in the implementation.

Utilization of one's own BSC was also quite diverse. In one company, the metrics and their targets were reported every month at high level management meetings as normal managerial practice. In that company, BSC was also connected to salaries. Another company arranged 8-10 times per year a special meeting for top management devoted only to BSC related issues. Yet another company followed its metrics quarterly, but has plans to connect BSC to its information system for more regular use. Another company follows its metrics two or three times per year, but regards that kind of utilization as ineffective. One company divided different perspectives into different intervals, when financial metrics were analyzed more often.

List of metrics in the energy sector

One of the original goals for this study was to find out what kind of metrics were utilized and create a list of metrics applicable in energy sector. The list of metrics was taught to shorten and facilitating the whole BCS process for new companies. It turned out that companies were not willing to publish single metrics, mostly because of their linkage to strategy, i.e. sensitive nature, but also the effort required to create their own metrics with specific features of the energy sector. Only the traditional financial perspective (e.g. turnover, ROI and profit) was seen as potential information for publication. Therefore, it was not possible to create a predefined favorite list of metrics. Opinions on kinds of lists were quite divergent, because the core of the whole BSC process would be missing if not implemented fully, but some were in favor of these lists in order to lead the way at least partially. General lists of metrics exist, such as Olve *et al.* (1998) and Hannus (1994). The interest in metrics list could be interpreted as curiosity about the competitors' strategies too, and also a willingness to use short cuts in implementing BSC.

As a whole it is very important for a company to create its own list of metrics, because, the value of planning lies more in the journey than in the destination. Otherwise the linkage to strategy may disappear and the connection to management will be lost, or with a list from elsewhere the result might be to implement someone else's strategy. The most important thing in BSC overall is the organizational learning and development of BSC so that it actually affects the whole company strategy and management. However, metrics behind different BSC's can be quite similar, e.g. in electricity transfer depending on the development stage of the company.

Compiling features of successful implementation of BSC in the energy sector

The following contains issues emerging from the practical implementation projects learned during the study. It does not pursue to be a project model or overturn project

models presented in the literature (Table I). It more like underlines certain practices noted in successful implementations of BSC in energy sector.

Clear project model in implementation.

- A project model clarifies, facilitates and accelerates implementation. Implementation is easier to manage and control even if the project is delayed from the original timetable.
- The project manager should be an expert, and a kind of “process owner” atmosphere should be created for the project manager.

There should be close connection between the metrics and strategy and relation to critical success factors in the derivation of metrics.

- A fundamental requirement, as the meaning of the whole system is to transfer strategy into operative information for practice.

Profound discussion over different perspectives.

- No automatic selection of Kaplan and Norton’s basic perspectives is allowed. They should be thoroughly discussed based on the company’s own strategic visions and goals. Even if the basic perspectives are selected they should be concluded only after detailed discussion.

Defining causal connections.

(1) The purpose of defining causal connections is to:

- find a more profound understanding of strategy and its assumptions;
- ensure that the metrics are giving incentives in the correct direction;
- allocate the critical resources to the vital issues; and
- assist in finding and eliminating overlapping metrics.

(2) Subtracting the number of metrics:

- in order to control the system and avoid the measurement as an end in itself;
- because a great number of metrics prevents the controllability of the measurement system; and
- according to experience, it is easier to increase than decrease the number of metrics.

One of the most significant aspects of implementing a BSC system is the learning process inside the organization.

- The vision is the goal to be achieved. Strategy is the means for the organization to reach that goal. The purpose of the measurement system implementation is to provide a framework for the organization to analyze and discuss specific issues, which they have to observe in striving to define goals on a daily basis. The meaning of different perspectives is to secure a versatile approach. One purpose in defining metrics is to check whether the strategy is realistic overall and what kind of goals should be used on a daily basis to reach long-term goals.
- Detailed analysis of assumptions behind the strategy is one goal in the implementation. The metrics are just a concrete sign of detailed analysis and commitment, while metrics are also one of the ultimate goals.

- Do not apply a list of predefined metrics outside the organization. A list may or may not help in creating the metrics needed, but the ultimate goal will be fully disregarded.

Courageous introduction of metrics.

- Metrics and a measurement system must not be considered too soon as final. Analysis and discussion should be in detail, but the measurement system will evolve as final only in practical use. The environment of an organization changes and the measurement system must react to these changes and evolve too.

Conclusion

For the company success is critical so that the company can control and manage operations effectively. The better the controllability is, the better the ability is to react to changes. In order to have good controllability, a company must have indications of the past, present and future from the operative environment. This is the phase where metrics and scorecards come into focus. Different kinds of scorecards and metrics are quite common at least in principle. The question is: why do so many implementations fail? Maybe the scorecard is not utilized in practice or it gives false indications, the reasons are diverse and the list can be quite long (Welch and Mann, 2001). Leung and Lee (2004) found that in a developing company, the challenge is to find the right strategic improvement targets, i.e. a suitable area for capability improvement and, all too often, the strategic targets from the top management could be self-conflicting but not self-reinforcing.

A simple means to avoid these pitfalls is to take the implementation process seriously. Literature has listed several ways to do this. However, one of the greatest challenges is in constructing the scorecard. Without proper competence and commitment in the construction phase, the whole implementation will fail. Construction is an exhaustive process if done properly. It is not enough to group the metrics into the traditional perspectives, neither can the work be loaded onto the shoulders of one person. Implementation requires expertise from all levels of the organization, because the know-how from practice, i.e. company and industry specific knowledge has to be present in each creation phase.

The energy sector has its own specific features which affect the implementation of BSC. Critical success factors have influence on the purpose of use, structure and utilization of BSC. Typical for the energy sector is to have explicit basic strategies and different operative standards in different business units, but there are also other challenges, such as internationalization and exacting environmental requirements. Cost effectiveness and operational efficiency seem to have an effect on all operations. It seems that the BSC construction process has been taken seriously, because in their performance measurement systems companies use different perspectives to the traditional ones. However, the greatest problems seem to be similar to those in other industries, such as finding the correct metrics, defining causal connections and getting the top management commitment.

In order to achieve successful BSC implementation in the energy sector, industry specific features and targets must be considered. In practice this is the case in every industry, and implementation does not differ very much from the other industries, because they each have to consider their own features too. However, in the energy industry companies seem to have quite similar strategies for similar operations, which

may lead to similarities in metrics too. Even then they still have to create their own implementation process from their own origins.

The results gained during the survey do not cover the whole Nordic or even Finnish energy sector, but they seem quite homogeneous and can be considered reliable. However, the ongoing phase of deregulation will have some further effects. Even though the sample was not large, it seems that BSC has more advocates in the energy sector than in other industries. BSC seems to have a role as an innovative methodology for developing industry as, for example, benchmarking would have (Yasin, 2002). We did have an original goal to present a list of favorite metrics, but that failed. On the one hand, this was because of the sensitivity of the information, but also because the companies preferred to create their own metrics. Companies were keen to emphasize the learning function of the implementation process. Using a predefined list of metrics may drive the implementation in a dangerous direction.

The results of this study should be regarded as valid for the energy sector alone. Generalization of the results in other sectors needs benchmarking from other sectors. It should be noted that, in the construction phase of the BSC, it is more important to search for metrics than finding them. It is important to go deep on organizations strategic goals and to understand the revenue logic and processes, where BSC construction is good tool. Benchmarking frames, in proportion, how these are done in other sectors.

References

- Ansoff, I. (1981), *Strategic Management*, Weilin + Göös, Espoo.
- Basili, V., Caldiera, G. and Rombach, H. (1994), "Goal question metric paradigm", in Marciniak, J.J. (Ed.), *Encyclopedia of Software Engineering*, Vol. 1, Wiley, New York, NY.
- Bauly, J.A. (1994), "Measures of performance", *World Class Design to Manufacture*, Vol. 1 No. 3, pp. 37-40.
- Bourne, M., Neely, A., Mills, J. and Platts, K. (2003), "Implementing performance measurement systems: a literature review", *International Journal of Business Performance Management*, Vol. 5 No. 1, pp. 1-24.
- Camp, R.C. (1994), *Business Process Benchmarking – Finding and Implementing Best Practices*, ASQC Quality Press, Milwaukee, WI.
- Donovan, M. (1999), *Performance Measurement: Connecting Strategy, Operations and Actions*, R. Michael Donovan & Co, Inc., Framingham, MA.
- Hannus, J. (1994), *Prosessi johtaminen. Ydinprosessien uudistaminen ja yrityksen suorituskyky*, 4th ed., Gummeruksen Kirjapaino Oy, Jyväskylä.
- Hernesniemi, H. and Viitamo, E. (1999), *Suomen energiaklusterin kilpailuetu*, Elinkeinoelämän Tutkimuslaitos, ETLA, Helsinki.
- Johnson, G. and Scholes, K. (1999), *Exploring Corporate Strategy*, 5th ed., Prentice-Hall, London.
- Judson, A.S. (1990), *Making Strategy Happen. Transforming Plans into Reality*, Basil Blackwell, London.
- Jungman, H., Okkonen, J., Rasila, T. and Seppä, M. (2004), "Use of performance measurement in V2C activity", *Benchmarking: An International Journal*, Vol. 11 No. 2, pp. 175-89.
- Kaplan, R.S. and Norton, D.P. (1992), "The balanced scorecard – measures that drive performance", *Harvard Business Review*, January/February, pp. 71-9.
- Kaplan, R.S. and Norton, D.P. (1993), "Putting the balanced scorecard to work", *Harvard Business Review*, September/October, pp. 134-47.

- Kaplan, R.S. and Norton, D.P. (1996a), "Using the balanced scorecard as a strategic management system", *Harvard Business Review*, January/February, pp. 75-85.
- Kaplan, R.S. and Norton, D.P. (1996b), *The Balanced Scorecard: Translating Strategy into Action*, Harvard Business School Press, Boston, MA.
- Kaplan, R.S. and Norton, D.P. (2001), *The Strategy-focused Organization: How Balanced Scorecard Companies Thrive in the New Business Environment*, Harvard Business School Press, Boston, MA.
- Kaplan, R.S. and Norton, D.P. (2003), *Strategic Maps: Converting Intangible Assets into Tangible Outcomes*, Harvard Business School Press, Boston, MA.
- Kopsakangas-Savolainen, M. (2002), *A Study on the Deregulation of the Finnish Electricity Markets*, Oulu University Press, Oulu.
- KTM (2002), *Energia ja ympäristö*, Ministry of Trade and Industry, Helsinki.
- Kueng, P. (2002), "Performance measurement systems in the service sector: the potential of IT is not yet utilised", *International Journal of Business Performance Management*, Vol. 4 No. 1, pp. 95-114.
- Laitinen, E.K. (1996), *Framework for Small Business Performance Measurement: Towards Integrated PM Systems*, Tutkimuksia 210, Vaasan yliopisto, Vaasa.
- Laitinen, E.K. (1998), *Yritystoiminnan uudet mittarit*, Gummerus Kirjapaino Oy, Jyväskylä.
- Laitinen, E.K. (2001), *Suomalaisten teknologia yritysten talouden ohjausjärjestelmät*, *Julkaisuja No. 95*, Vaasan yliopisto ja Levón-instituutti, Vaasa.
- Leung, S. and Lee, W.B. (2004), "Strategic manufacturing capability pursuance: a conceptual framework", *Benchmarking: An International Journal*, Vol. 11 No. 2, pp. 156-74.
- Lillrank, P. (2000), "Tulosjohtamista budjettiorganisaatiossa", *Talouselämä*, Vol. 34, pp. 64-5.
- Lynch, R.L. and Cross, K.F. (1992), *Measure Up! Yardsticks for Continuous Improvement*, Blackwell Publishers, Malden, MA.
- McCunn, P. (1998), "The balanced scorecard ... the eleventh commandment", *Management Accounting*, December, pp. 34-6.
- Magd, H. and Curry, A. (2004), "Benchmarking: achieving best value in public-sector organisations", *Benchmarking: An International Journal*, Vol. 10 No. 3, pp. 261-86.
- Maleyeff, J. (2003), "Benchmarking performance indices: pitfalls and solutions", *Benchmarking: An International Journal*, Vol. 10 No. 1, pp. 9-28.
- Malmi, T., Peltola, J. and Toivanen, J. (2002), *Balanced Scorecard – Rakenna ja sovelleta tehokkaasti*, Kauppakaari, Helsinki.
- Mintzberg, H. (2000), *The Rise and Fall of Strategic Planning*, Pearson Education Limited, London.
- Murray, E.J. and Richardson, P.R. (2000), "Shared understanding of the critical few: a parameter of strategic planning effectiveness", *International Journal of Business Performance Management*, Vol. 2 Nos 1/2/3, pp. 5-16.
- Neely, A. (2000), "Performance measurement: theory and practice", *International Journal of Business Performance Management*, Vol. 2 Nos 1/2/3, pp. 1-4.
- Olve, N.G., Roy, J. and Wetter, M. (1998), *Balanced Scorecard – yrityksen strateginen ohjausmenetelmä*, 2nd ed., WSOY, Porvoo.
- Porter, M.E. (1998), *Competitive Advantage: Creating and Sustaining Superior Performance*, Free Press, New York, NY.

- Pulford, K., Kuntzmann-Combelle, A. and Shirlaw, S. (1996), *A Quantitative Approach to Software Management – The AMI Handbook*, Addison-Wesley, New York, NY.
- Rännäri, O. (1996), Muutoksen suunta – Energialiiketoimintaa 2000-luvulla, Helsingin Energian julkaisusarja A No 1, Helsinki.
- Riskula, G. (1996), “Päätöksenteko muutoksessa”, in Rännäri, O. (Ed.), *Muutoksen suunta, energialiiketoimintaa 2000-luvulla*, Helsingin Energian julkaisu A, Helsinki, pp. 100-11.
- Rummler, G.A. and Brache, A.P. (1995), *Improving Performance – How to Manage the White Space on the Organization Chart*, Jossey-Bass Publishers, San Francisco, CA.
- Sharif, A.M. (2002), “Benchmarking performance management systems”, *Benchmarking: An International Journal*, Vol. 9 No. 1, pp. 62-85.
- Taylor, B. and Graham, G. (1992), “Information for strategic management”, *Management Accounting*, January, pp. 52-4.
- Toivanen, J. (2001), *Balanced Scorecardin implementointi ja käytön nykytila Suomessa*, Acta Universitatis Lappeenrantaensis 108, Lappeenranta.
- Turunen, T. (1996), “Suomen sähkömarkkinauudistus – sen tausta, tavoitteet ja vaikutukset”, in Rännäri, O. (Ed.), *Muutoksen suunta, energialiiketoimintaa 2000-luvulla*, Helsingin Energian julkaisu A, Helsinki.
- VTT Energy (1999), *Energia Suomessa – Tekniikka, talous ja ympäristövaikutukset*, Edita, Helsinki.
- Welch, S. and Mann, R. (2001), “The development of a benchmarking and performance improvement resource”, *Benchmarking: An International Journal*, Vol. 8 No. 5, pp. 431-52.
- Whittington, R. (2001), *What is Strategy – And Does it Matter?*, 2nd ed., Thomson Learning, London.
- Yasin, M.M. (2002), “Theory and practice of benchmarking: then and now”, *Benchmarking: An International Journal*, Vol. 9 No. 3, pp. 217-43.

About the authors

Harri Haapasalo (born 1969) graduated with an MSc in Civil Engineering in 1995. After his Licentiate in Construction Economics in 1997, he went on to do an MSc in Economics and Business Administration 1998 and a PhD in Industrial Engineering and Management in 2000, all at the University of Oulu in Finland. For three years he worked in the construction industry and since 1995 he has worked at the University of Oulu firstly as a researcher and then as a lecturer. He was appointed as a Professor in the Department of Industrial Engineering and Management in 1998 and has been the Head of the Department of Industrial Engineering and Management since 2000. Harri Haapasalo is the corresponding author and can be contacted at: harri.haapasalo@oulu.fi

Kari Ingalsuo (born 1975) has got his Master's degree in Process Engineering in 2003 at the University of Oulu, advanced studies in Industrial Engineering and Management. He is working as a Cold-end Manager in Saint-Gobain Isover Oy and during his studies has also got practical experience as foreman in industry and in research tasks in Germany. E-mail: kari.ingalsuo@isover.fi

Timo Lenkkeri (born 1976) graduated with an MSc in Industrial Engineering and Management from the University of Oulu in 2003. He has worked in the field of metrics development in both Nokia Research Center and QPR Software Plc. E-mail: tlenkker@mappi.helsinki.fi

To purchase reprints of this article please e-mail: reprints@emeraldinsight.com
Or visit our web site for further details: www.emeraldinsight.com/reprints

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.