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Environmental and performance management forces

Integrating "greenness" into balanced scorecard

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Abstract

Purpose – The purpose of this paper is to analyze the forces that prompted a Finnish food manufacturing company to implement environmental management system (EMS) and performance management system (PMS). The paper also aims to describe how and why environmental issues were integrated onto a balanced scorecard (BSC).

Design/methodology/approach – The paper utilizes both qualitative and longitudinal case study approaches. Semi-structured interviews are the main source of empirical data; these were conducted by both researchers.

Findings – The forces driving the implementation of the EMS changed from external to internal forces over time. The initial purpose of EMS implementation was to obtain an environmental certificate. Later on the forces turned to internal ones when the causal link between improving environmental performance and profitability was recognized. The PMS implementation, as well as the PMS and EMS integration, had internal forces driving them. The company integrated environmental indicators into its BSC, which thus connected the EMS and PMS. This integration demonstrated the financial impacts of the environmental improvements.

Research limitations/implications – The limitation relates to the methodological issues when the results can be generalized theoretically.

Practical implications – If dealing with environmental issues is considered to potentially increase profitability, there must be a great potential to improve environmental performance at the same time. If environmental measures are integrated into a BSC, they are monitored and discussed more precisely. The BSC is thus a worthwhile tool for reporting information on environmental performance. The construction of an EMS and a PMS requires a co-operation between different functions and levels of the organization. Finally, the forces for improving EMS and PMS can emerge both from outside and inside.

Originality/value – This paper contributes to the empirical research on environmental and performance management by integrating these two issues, and also illustrates that forces are dynamic rather than static.

Keywords Balanced scorecard, Environmental management, Integration, Finland

Paper type Research paper

The authors would like to acknowledge the assistance and positive attitude towards this research project of the managers of the target company interviewed. The financial support of the Foundation for Economic Education (application number 26716) is also greatly acknowledged. The authors also appreciated the helpful comments of the participants of the EAA annual meeting 2007, EMAN-EU 2007 and AAA 2007. Two anonymous reviewers' inputs are also greatly appreciated.

Qualitative Research in Accounting & Management
Vol. 5 No. 3, 2008
pp. 184-206

1176-6093
DOI 10.1108/11766090810910218

Introduction

Several studies have considered the external or internal implementation forces behind environmental management systems – EMS (Darnall, 2006; Davidson and Worrell, 2001; Melnyk *et al.*, 2003; Pan, 2003; Rintanen, 2005). These studies are focused solely on environmental management and they have not considered general performance management systems (PMS) at the same time (Bansal, 2005; Wagner, 2007). Only a few studies have simultaneously considered environmental and performance management. These studies usually adopt statistical methods to investigate the correlations between environmental and financial performance (Darnall, 2006; Klassen and McLaughlin, 1996; Melnyk *et al.*, 2003; Montabon *et al.*, 2007), and are limited in the sense that they do not consider simultaneously what kind of forces affect the implementation of EMS and PMS, and how the forces have an effect. Our qualitative and longitudinal case study overcomes this existing weakness.

A great number of different companies are using various PMS such as Kaplan and Norton's (1992, 2005) balanced scorecard (BSC) framework. Several forces can affect the utilization of the PMS. These forces are often primarily internal because a PMS is constructed to assist management decision making. For instance, Malmi (2001) proposes three different modes of utilization for a BSC. First, it can be used to focus on the issues of management by objectives. Second, a BSC can be an information system. Finally, a BSC can sketch the cause and effect relationship between different measures. Malmi (2001) found that the link between measures was not well understood by the Finnish early adopters of the BSC. Several authors have studied the change forces behind accounting systems, using most typically the NIS version of the institutional theory of DiMaggio and Powell (1983) and (Ribeiro and Scapens, 2006), but these analyses have also focused solely on the accounting systems, not the integrated systems.

Sustainability is another issue which has been discussed in recent years (Ratanajongkol *et al.*, 2006). Both municipalities and private companies publish a large number of sustainability reports, so indicating the increased importance of sustainability issues (Lozano and Vallés, 2007). Although the number and length of sustainability reports have increased on average, differences can been found between industrial sectors (Ratanajongkol *et al.*, 2006).

Sustainability is defined as those activities of companies demonstrating the inclusion of social and environmental concerns in business operations, and in interactions with stakeholders (van Marrewijk and Were, 2003). There is also a large number of other sustainability definitions (Byrch *et al.*, 2007; Callens and Wolters, 1998; Lloyd, 2005; Sustainable Washington, 2008; van Marrewijk, 2003). Byrch *et al.* (2007) used a cognitive mapping technique and they found great differences in the definition of sustainable development between organizations and individuals. For instance, Callens and Wolters (1998) define sustainability as a way of behavior, a way of living and a way of thinking. Sustainability definitions are in general based in some way on Brundtland's (1987) report. The report defines sustainable development as an operation that meets the needs of the present, without compromising the ability of future generations to meet their own needs (Brundtland, 1987).

The sustainable development concept is normative because it describes how things should be performed rather than how things are currently done (Byrch *et al.*, 2007). As Byrch *et al.* (2007) found sustainability may mean different things to different

people in different contexts, and in this sense we might talk about "weak" or "strong" sustainability (Bebbington, 2001). This study emphasizes the weak version of sustainability, which is a kind of "business version" of the concept, instead of the more radical strong version, questioning the basic assumptions behind economic growth.

Sustainability has three aspects; economic, environmental and social (Azapagic, 2004; Dias-Sardinha and Reijnders, 2005; GRI, 2008). We focus on the environmental aspect and how it concerns an organization's impact on living and non-living natural systems, including ecosystems, land, air and water (GRI, 2008). Measuring the level of social sustainability of a business is not an easy task because social indicators must take into account both the many interests of employees and the company's social impacts at the local, national and global levels (Azapagic, 2004). Furthermore, many of the variables such as protection of human rights are difficult to quantify (Azapagic, 2004).

To attain sustainability, organizations need cultural change and stakeholders who place a value on the issues surrounding sustainability. These stakeholders can be economic and political institutions, as well as the general public, local communities, customers or suppliers (Bansal and Roth, 2000; Callens and Wolters, 1998; Dias-Sardinha and Reijnders, 2005). According to Callens and Wolters (1998), the efficiency of these stakeholders is dependent on their number, degree of threat, legitimacy and the distance between stakeholders and the organization. Although the stakeholders may demand sustainability the forces driving the implementation of sustainability also can be internal (Bansal and Roth, 2000; Dias-Sardinha and Reijnders, 2005; Melnyk *et al.*, 2003; Pan, 2003; Rintanen, 2005). The internal forces usually stem from the need for improvement in profitability.

We found only a few studies which have considered the integration of environmental and other PMS (Epstein and Wisner, 2001; Figge *et al.*, 2002; Magrini and Lins, 2007; Wagner, 2007). These studies are usually normative and they propose different alternatives to integrate sustainability into a BSC (Epstein and Wisner, 2001; Figge *et al.*, 2002). Only a few studies have simultaneously considered the integration of EMS and PMS and their effects on companies' performance (Wagner, 2007; Magrini and Lins, 2007). According to Wagner's (2007) survey results with regression analysis, EMS integration with other managerial functions was positively associated with company performance measures such as impact on the market (e.g. competitive advantage, market share), image (e.g. corporate image, shareholder satisfaction), efficiency (e.g. cost savings, profitability, productivity) and risk (e.g. insurance conditions, access to bank loans) benefits. Therefore, EMS and PMS integration have several potential positive outcomes. However, these integration studies are limited in that they do not investigate which forces affect implementation of these systems and whether these forces change during the implementation process.

It can be worthwhile integrating environmental issues into a BSC, if two conditions are fulfilled. Firstly, if companies are already using a BSC framework it can be easier to use the same framework to implement the objectives of sustainability. Secondly, environmental components should be included in an organization's strategic plans to complement the strategic focus of the BSC (Kaplan and Norton, 2005). Environmental issues are usually considered as strategic for organizations because they might have an influence on companies' image, profitability, competitiveness, markets and products, which in turn affect economic survival (Dias-Sardinha and

Reijnders, 2005; Johnson, 1998; Magrini and Lins, 2007; Bansal and Roth, 2000; Wagner, 2007).

Earlier studies showed the reasons for implementing both environmental management issues and a BSC can vary between organizations and that these forces can be both internal and external (Bansal and Roth, 2000; Darnall, 2006; Dias-Sardinha and Reijnders, 2005; Lozano and Vallés, 2007; Malmi, 2001; Wagner, 2007). Generally, these studies have considered the drivers of these systems separately without simultaneous analysis (Rothenberg, 2007; Malmi, 1999). The primary purpose of this study is to explain and describe the factors which prompted a Finnish case company to implement both an EMS and a BSC. The purpose is to seek a relationship among the dimensions of these two social phenomena (i.e. EMS and PMS) and offer an interpretation of why the case company decided to implement these two voluntary management tools (Ahrens and Chapman, 2006; Woodside and Wilson, 2003). Another purpose of this study is to describe and explain the linkage between environmental and PMSs (i.e. BSC) in a Finnish case company.

The rest of the paper is structured as follows: first, we present some prior studies concerning environmental management and the forces which affected it. The forces in question may be either external or internal. Then we discuss methodological issues such as the case method, data gathering and the case description. This leads us to present the empirical results, and finally, we highlight matters for discussion and draw conclusions.

Earlier studies of forces driving environmental management

Studies of this question could utilize several different theories such as stakeholder theory (Enquist *et al.*, 2006; Rothenberg, 2007) or institutional theory (Ahrens and Chapman, 2006; Ribeiro and Scapens, 2006). The latter is frequently utilized in qualitative management accounting and environmental management research (Ahrens and Chapman, 2006; Bansal, 2005; Ribeiro and Scapens, 2006; Rothenberg, 2007). Institutional theory has usually been used to explain and analyze the process leading to the adoption of an innovative system (Darnall, 2006; Ribeiro and Scapens, 2006; Rothenberg, 2007) such as EMS and PMS in our case. As a result of the great number of institutional theory applications we did not consider it worthwhile to utilize institutional theory alone in this study. Furthermore, we did not want to force the data into any a priori theory which is very usual in a case study research paper (Hyvönen *et al.*, 2006).

Companies and organizations may have forces driving them to implement their management systems. These forces can arise both inside (internal) and outside (external) of the organization (Anderson and Young, 1999; Bansal and Roth, 2000; Malmi, 1999). Malmi (1999) studied how the driving forces behind activity-based costing diffusion changed over the course of the diffusion, using three categories to analyze the forces. The first category incorporates the efficiency choices, such reliability, usefulness and updating of an existing system or other units benefits. The second category covers the situation where companies had the adoption forced upon them, i.e. the parent company or head office mandated the use of the system. The final category is the fashionable category, where an adopter is driven by the desire to try a new tool. Malmi (1999) found that the forces changed over the course of the diffusion from the efficiency to the fashionable forces. Anderson and Young (1999)

also studied the implementation forces affecting ABC systems. According to their framework, contextual and ABC implementation process factors affected the overall use and accuracy of ABC. The model of Anderson and Young (1999) dichotomizes further contextual factors on individual and organizational subfactors. The individual factors include subfactors such as being disposed to change or production process knowledge. The organizational factors also include several subfactors; job standardization, internal communication, improvements over existing systems, compatibility with the firm's strategy, competition, and environmental uncertainty.

In our study, we describe forces as being whatever the source of motivation which affected the implementation of the environmental or PMSs. This section briefly presents which forces have been drawn out by the earlier studies and the benefits of environmental management.

Environmental management forces

One source of external forces may be regulators and public authorities (Bansal and Roth, 2000; Bansal, 2005; Darnall, 2006; Davidson and Worrell, 2001; Lozano and Vallés, 2007; Magrini and Lins, 2007; Rintanen, 2005; Rothenberg, 2007). Davidson and Worrell (2001), Bansal and Roth (2000) and Lozano and Vallés (2007) found that environmental regulatory and government pressure may be the major drivers of managerial environmental action. Darnall (2006) found that stronger regulatory pressures were more likely to mandate, as opposed to merely encourage, environmental certification in the operational units. Also, Rintanen (2005) found that regulatory pressures were the most influential external determinist factor when considering environmental issues in Finnish and Italian case companies.

However, while regulatory pressure may serve as a driver of environmental action, it is not the only determinant which affects the establishment of environmental management processes (Bansal and Roth, 2000; Davidson and Worrell, 2001; Rothenberg, 2007). The other forces can originate with stakeholders such as competitors, employees and customers (Bansal and Roth, 2000; Callens and Wolters, 1998; Darnall, 2006; Davidson and Worrell, 2001; Pan, 2003). The customers may for instance demand the implementation of a certified PMS such as ISO 14000 (Darnall, 2006; Pan, 2003; Rintanen, 2005). Also improved international experience, media pressure, mimicry or increased size may affect the development of environmental management practices (Bansal, 2005).

Forces other than customers or other stakeholders may also affect environmental management and motivate a firm to obtain an environmental certificate. Pan (2003) found that one stimulus may be a perceived marketing advantage (i.e. image), when many competitors were already ISO 14000 certified, or awareness of the benefits experienced by other certified companies and the avoidance of a potential export barrier.

To summarize this subsection concerning environmental external forces, we present Bansal and Roth's (2000) classification concerning the motives for environmental management and ecological responsiveness. Bansal and Roth's (2000) qualitative study illustrates three motives for environmental management and ecological responsiveness. These motives relate to competitiveness, and ecological responsibility (Bansal and Roth, 2000). The competitiveness motive emphasizes the organizations' purpose to improve its long-term profitability. According to Bansal and Roth (2000) and Darnall (2006), the

legitimization motive refers to the organization's desire to improve the acceptance of its actions compared to regulations, norms, values or beliefs. Ecological responsibility refers to a motivation that stems from the concern that companies have for their social obligations, values and ethical concerns in general. Bansal and Roth (2000) describe ecological motivation as exemplified by actions such as donations to environmental interest groups or the provision of green product lines, even if less profitable.

Environmental management benefits

As earlier studies illustrated, the impetus behind environmental management can be external. However, it may also be internal if an organization considers that environmental management can somehow be of benefit. Of course, environmental performance and EMS are not the same thing and EMS would not automatically lead to improved environmental performance or to an organization, which is a "genuine sustainable" one (Bebbington, 2001; Lozano and Vallés, 2007). However, many EMS benefits are presented in the literature and these benefits might also be commercial arguments made by the EMS providers. This subsection presents the environmental management benefits.

One benefit of environmental management may relate to the organization's financial performance. Improving environmental performance can bring financial benefits through cost savings due to cleaner production (Azapagic, 2004; Bansal and Roth, 2000; Bansal, 2005; Magrini and Lins, 2007; Melnyk *et al.*, 2003; Pan, 2003; Rothenberg, 2007; Yakhou and Dorweiler, 2004). Cleaner production leads to a smaller amount of waste which causes lower landfill costs. Environmental management can also bring other benefits such as increased productivity and quality, increased on-time delivery ratios, enhanced customer satisfaction, and improvements in internal procedures, employee morale or image (Darnall, 2006; Magrini and Lins, 2007; Melnyk *et al.*, 2003; Pan, 2003). These benefits can be realized by improving financial performance later. Environmental management might have a greater impact on companies' profitability and financial position in the future through public policy and market forces (Bartolomeo *et al.*, 2000).

The relationship between environmental management and financial performance is also measured with statistical methods (Darnall, 2006; Klassen and McLaughlin, 1996; Melnyk *et al.*, 2003; Montabon *et al.*, 2007). Klassen and McLaughlin (1996) found that environmental management can improve a company's financial performance and stock market returns. Environmental management in itself does not necessarily improve performance, but improved performance is initially stimulated by the formality of EMS. On the other hand, Montabon *et al.* (2007) did not find a positive correlation between various environmental management practices and profitability, whereas they did find a positive correlation between different environmental practices and other performance dimensions such as product innovation and process innovation and sales growth. Bansal (2005) even found a negative association between financial performance (ROE) and sustainable development. Therefore, we may conclude, that the results of the examination of the relationship between environmental and financial performance are conflicting.

The development of a positive relationship between environmental management and a firm's performance may require the formal elements of an EMS such as certification (Melnyk *et al.*, 2003) or a longer time period between EMS implementation

and financial performance (Bansal, 2005). The certification of an EMS improves performance compared to uncertified systems (Melnyk *et al.*, 2003). According to Melnyk *et al.* (2003), the performance was improved as a result of reduced costs, improved quality, the reduction of waste in the design and equipment selection process, and the reduction of lead times. In addition, Pan (2003) found that EMS certification improved corporate image (Bansal and Hunter, 2003), environmental performance and relations with communities (Darnall, 2006).

Environmental management practices can bring financial benefits for organizations as a result of increased product prices in addition to decreased costs. Greener operations may set higher prices for products if consumers consider these products greener than any substitutes. Ginsberg and Bloom (2004) found that 15 per cent of US consumers routinely pay more for green products and that another 15 per cent seek out green products if they do not cost more. Darnall (2006) found that companies which mandated ISO 14001 certification in their divisions considered that certification might increase their revenues.

Worthwhile environmental management can also increase the turnover of products if the organization can utilize its green image to differentiate their products from those of its rivals (D'Souza, 2004). A proactive approach to environmental management issues is not only more cost-effective, but it also opens new business avenues (Yakhou and Dorweiler, 2004), for new business opportunities are open to any company that is expressly environmental, not necessarily an extreme "green" company (Yakhou and Dorweiler, 2004). Therefore, environmental management practices, such as ISO 140001 may help to achieve strategic benefits and competitive advantage (Darnall, 2006; D'Souza, 2004; Yakhou and Dorweiler, 2004; Bansal and Roth, 2000).

Methodology

We used a case study approach and we were not testing a hypothesis or trying to make any statistical generalizations. Therefore, the results of the study can be generalized as rather more contextual than statistical or constructive (Ahrens and Chapman, 2006; Ahrens and Dent, 1998; Enquist *et al.*, 2006; Lukka and Kasanen, 1995; Modell, 2005; Scapens, 1990; Vaivio, 2008; Woodside and Wilson, 2003). According to Modell's (2005), Vaivio (2008) and Woodside and Wilson (2003) classification, the result of this study can be used for generating a hypothesis which can be tested by a survey later.

The empirical data were collected via a preliminary interview of the technical director and quality manager of an international Finnish company and ten semi-structured follow up interviews. These two representatives were selected for the preliminary interviews because they were the contact persons named on the company's web pages. They were also responsible for running the environmental management policy and dealing with any issues that arose. The preliminary interview was justified for several reasons (Ribeiro and Scapens, 2006; Rothenberg, 2007). First, we wanted to present our research project and evaluate the case company's willingness to participate. Second, we acquired more empirical information on how environmental and performance management issues operated in practice. Appendix 1 describes all the interviews in more detail.

Semi-structured interviews are a common method used in collecting qualitative data and consequently this method is also used in this study (Lee and Humphrey, 2006). Appendix 2 illustrates briefly the themes of the semi-structured interviews. We wanted

to interview different directors to achieve a better understanding of the phenomena. The interviewees' responsibilities varied from unit management, through business area management, to board level functional responsibility within the parent company and group.

Both researchers participated in all the interviews. The interviews were recorded on tape and transcribed onto paper (Rothenberg, 2007). We read the transcribed interviews several times to contribute research questions and understand the phenomena (Ahrens and Chapman, 2006). We tried to categorize the reasons for the two management issues by re-reading and indexing. We usually spent from one to two hours in the company and the duration of interviews varied from 40 to 90 minutes. All the interviews were conducted in the company, and in the interviewees' native language. Therefore, all the quotations in the article have been translated into English, and consequently, different shades of meaning may emerge due to the translation, even though we have tried to be very careful in conducting the translation.

We have utilized several modes of triangulation to increase the trustworthiness of our study (Ahrens and Chapman, 2006; Vaivio, 2008; Woodside and Wilson, 2003; Lee and Humphrey, 2006; Modell, 2005). First, we utilized several different types of data, i.e. annual reports, public documents and interviews. Second, our interviewees had both horizontally and vertically different positions. Third, both researchers participated in all interviews, which enabled researcher triangulation. Fourth, we allowed as much time for interviewing and observing in the case company as was possible.

The case company

We used several criteria to select a case company. Firstly, the environmental issues had to be considered. We considered that the publication of an environmental report to be an indication of the importance of environmental issues. Secondly, a company had to utilize a BSC for performance evaluation. Thirdly, the company had to be large enough for the implementation of environmental issues programs and BSC reporting to be challenging projects and interesting to study (Bansal, 2005). Finally, it had to be willing to participate in the research project.

These criteria led us to select a Finnish meat processing company. The case company has bought subsidiaries abroad and invested in a plant in the last decade. It publicly reports on its environmental performance by dedicating one part of its official annual report for the purpose (for a similar reporting policy, see for example Enquist *et al.*, 2006). It also produces a separate environmental report which is not published annually.

The case description is based on the company homepage, published reports, the company management system and interviews. Our case site is a Finnish food manufacturing company, which is the largest subsidiary company of a larger group. Its turnover is around €500 million. The group is becoming increasingly international particularly in the Baltic Sea area, and it owns several well-known brands. The case company is responsible for the group's domestic operations, and its customers include retailers, catering enterprises, industry and the export trade. The case company has four major production plants in Finland.

Environmental management in the case company. According to its current (approved in 2006) management system, the company "recognises its environmental responsibility. It has an environmental programme aiming at controlling the use of

natural resources and preventing environmental damage. It is committed to the principle of sustainable improvement." Therefore, its executives recognize the environmental risks and impacts of their operations and set goals according to them. Environmental programmes were first prepared for a five-year period (2001-2005) and now span three-year periods in order to achieve the set goals.

According to the management system, the quality manager is responsible for ensuring that the environmental system incorporates the elements and procedures of the ISO 14001 standard. The technical director and operations engineers are responsible for planning location-specific environmental investments and for monitoring their progress. The quality and technical managers were the key developers of the environmental management program.

The EMS is based on the ISO 14001 standard which was granted in 1995. The environmental programme tries to ensure that the set objectives are achieved. Furthermore, the programme communicates the company's environmental responsibility and the focus on continuous improvement of its operations to interested groups. The aim is to minimize the environmental impacts of production and thus also keep expenses as low as possible. The company has set objectives for reducing the use of energy and natural resources. In addition, it continuously seeks to improve the level of environmental protection in its operations.

The first environmental programme covered the period from 2001 to 2005. The second program covers the years 2006-2008 and its environmental goals relate, for instance, to consumption of energy and natural resources, the amount of waste, personnel, environmental education and the recognition of the environmental impact of deliveries.

Environmental issues and their related environmental impact are recognized within each production unit and unified within the company's environmental programme. Environmental impacts are evaluated and the company pays attention to all significant issues in terms of environmental protection and its business. Environmental conditions required for operations have been documented, and their progress is regularly monitored via internal reviews.

The BSC and integration of environmental measures. The company decided to implement a BSC mechanism in 2004, that is, after ISO 140001 certification. They established a steering group which included the IT director; representatives from control and logistics, the quality manager and a further group of controllers. They decided to include environmental measures in the BSC during the process. The BSC consists of the four common perspectives (financial, customer, internal processes and learning and growth) and the environmental targets and measures were included in the processes perspective.

Empirical results

This section presents the empirical results and it begins with an explanation of why the case company started its EMS. The reasons are divided into external and internal forces. We also describe the reasons why they implemented a BSC and why environmental issues are integrated into it.

External forces prompting implementation of the EMS

One major reason for the implementation of the environmental objectives was the EMS implementation in 1995 to obtain an environmental certificate. This certification was

considered useful because it would attract customers and enhance the company's brand, particularly in markets that were known to be becoming more and more environmentally conscious:

> Joining the mainstream was the reason in many ways. The fear, that if we weren't part of this thing, we would miss some mysterious benefit, which we did not understand. If we had missed the opportunity to get certified, our arch enemy would have then been a year ahead of us. [...] Of course the quality managers have been involved in it and marketed it [...] It has been about following the spirit of your time. Fear that if you are an outsider, you lose out on something and the fear that it might become either a barrier to or a condition of trade; or that it might just be an opportunity to achieve better profits, if you have implemented this system (Quality manager).

> If the company wants to have a certain brand image [...] we have to talk about these [environmental] issues frankly and be a pioneer in that we report issues before we are asked, not only that which is obligatory. It brings some kind of spaciousness into the corporate image (IT director of group).

The group's CEO stated that the case group wants to be a "good corporate citizen" which shapes the group environmental management practices. The corporate citizenship closely relates to the maintenance and development of the company's brand reputation. Thus, the CEO's statement is consistent with results stated by Rintanen (2005, p. 228) who found that her meat processing case companies had a strong respect for the law, a sense of citizenship and social conscience.

According to a member of the group executive board and one director of the group's parent company, the initial reason to implement EMS was the goal of obtaining the environmental certificate. The director of the parent company interviewed believed that the pressure on corporate image and a social pressure from outside the organization forced the establishment of an environmental management programme. Although this may give the impression that the case company was forced to report environmental management practices, there are instances where it may be desirable to report successful initiatives. The requirement of maintaining or improving an image may have forced the case company to report environmental management practices, but the company may want to report environmental operations if they have been successful. This is a motivation cited by the technical director of the parent company, who added that it does not make sense to remain silent when the company has successfully overcome environmental issues.

The certificate and certification process can bring benefits other than just improving corporate image. The quality manager and technical director of the parent company thought that certification is also useful for continuous improvement purposes (Lozano and Vallés, 2007). The certificate requires that a company improves its environmental performance and system all the time. An indication of this effect is the systematic realignment of environmental targets to reflect the continuous improvement. The technical director added that the certificate also requires environmental performance measurement, which provides another benefit of the certification.

Interviews showed that EMS was not a customer demand. According to the quality director on the group executive board, the case company certified its EMS so early that customers were not aware of any requirement for the certification. On the other hand, one director of the parent company considered that the company's customers did require a certified environmental management policy. The perceptions of these two

interviewees conflict, but this might be explained by an idea of the technical director, who stated that customers do sometimes ask some questions concerning environmental management issues, but that those questions are not in themselves an impetus which would demand certified environmental management practices. Therefore, one manager may interpret customers' questions as sufficient to motivate the use of an EMS, whereas another manager may interpret these questions as being just questions, lacking the strength to be deemed a request for action.

The case company also had other reasons to implement and develop its EMS, other than achieving certification. One additional motive was the requirements of the environmental authorities. The technical director explained that by environmental authorities the company meant both local and municipal authorities, so for instance, a regional environment center is a local environmental authority. According to a business area director of the parent company, environmental authorities require various environmental information when a company is considering investing in new plants for instance, a situation familiar to the case company, which has invested in a huge manufacturing plant in the last decade.

The group's IT director considered that the source of the force for environmental management change has changed during recent years. The director thought that external forces were primary at the beginning of the implementation phase, but suggests that the forces are more internal than external nowadays. The IT director considers one reason for this change to be that environmental management and the associated reports are already common in the industry, and the group's CEO had a similar opinion. In addition, the CEO considered that environmental management issues can bring a competitive advantage and improve the company's image particularly in developing and eastern European countries.

Internal drivers to implement EMS

The case company had reasons to improve its EMS apart from the external forces analyzed earlier. In accordance with the group IT director's proposition that drivers of change are currently more internal than external, this section investigates these internal forces, and how they affect the EMS and selected indicators.

All the respondents emphasized that the case company is very Euro driven. The quality manager thought that the policy has enabled the company to maintain its financial stability throughout its history. One characteristic of a Euro driven policy is that managers specifically compare current financial resources and the required future investments. Another characteristic of the policy is that directors progress those investments which relate to money saving or generation, and the investments in environmental issues have been no exception. The quality director of the group's executive board emphasized that they have been courageous enough to invest in environmental issues because these investments can save money and decrease costs too. On the other hand, both the quality manager and one of the directors of the parent company considered that energy issues are currently considered more thoroughly as a result of increasing energy unit costs. The group's vice-CEO concluded that the company's culture changed to become more cost-oriented from the middle of the 1990s:

> We are a very Euro-oriented firm. So all development and operative performance concerning money making or saving will succeed. We encouraged investment in environmental issues because it has saved euros (Quality director of group).

A director of the parent company emphasized that all measured environmental indicators affect the company's financial performance. The direct effect on profitability was one key factor when the most suitable environmental indicators were selected. These indicators are the amount of waste, packaging material, electricity, landfill waste and oil. Even small percentage changes in the indicators will influence the company's financial performance as result of the huge quantities involved. Furthermore, the technical director emphasized that the case company operates in a low-margin industry and consequently small cost decreases directly affect profitability. According to the Technical director, it is the cost of electricity that has the strongest impact on financial performance. The group's CEO gives a practical example concerning increased energy costs:

> Our energy costs increased by a million euro in Finland in the last quarter. If we have four quarters that makes 4 million. If you can improve energy utilization it affects the firm's profitability. Just the delta (the change) is one million euros in a quarter, which is a result of only the increased unit price of energy (CEO of the group).

According to the interviewees, managers were aware of the relation between decreased costs and improved environmental performance. For instance, the quality director presented an example concerning water consumption:

> We know the selected indicators each cost effects [...] We know how much we can reduce costs if we can save water. This saving brings financial benefits [...] both for the environment and for the company (Quality director of group).

The case company also had other criteria for choosing the environmental indicators other than their effect on profitability. According to the technical director and vice-CEO of the group, the selected indicators are important for the case company because they can point out the limits of resource capacity. For instance, the availability of water might be challenged in the future and consequently water consumption is an important indicator to measure.

The group's CEO and quality director emphasized that environmental management and programs generally benefit the organization. The CEO thought that environmental management is worthwhile because it requires documentation. This documentation allows more systematic and straightforward practical operations. The interviews revealed that these environmental programs are also worthwhile, because they require genuine target setting. Moreover, the targets lead the improvement of the company's performance.

One reason for implementing EMS and environmental targets can be found in the organizational culture. The case company's managers commonly shared a "measurement culture". One business area director of the parent company crystallized their measurement culture:

> Whatever you are interested in, you measure it. What you measure, you achieve (Business area director of parent company).

Reasons behind BSC implementation. The case company had several reasons to implement a BSC PMS. These forces were primarily internal.

According to the interviews, the company had "general pressures" to improve its information systems and internal reporting practices. Internal reporting was conducted by multiple and fragmented information systems. The problem with these fragmented information systems was that the information was not available for all the decision

makers. The group's IT director added that as the company is trying to centralize its IS across the board, the BSC's capability to help focus on the task was appreciated.

The case company had also several other more specific reasons to implement a BSC. Firstly, it has recently launched a process management ideology. The group's IT director thought that the company should be able to develop, manage and evaluate the company's different processes. According to the IT director, the BSC enabled the measurement of the desired activities and that was one reason for implementing BSC. Secondly, they also required measures from perspectives other than the purely financial. Broadening the measurement perspective was thus another reason behind BSC implementation. Thirdly, the IT director thought that a BSC would enable the organisation to identify critical success factors, establish the measures for these factors and communicate the vision, values and strategy from directors to employees. This third factor reflects the general normative features of the BSC.

The quality director appreciated the BSC's capability to summarize and illustrate of the current situation of the company in one page. According to the director, the BSC is worthwhile because it can also illustrate a trend. The quality director appreciated the capability of the BSC to easily present the comparison between a current situation and a company's trend. Furthermore, BSC software was considered easy to use.

The case company also had other reasons to improve its internal reporting besides centralizing its fragmented IS, improving the capabilities for information presentation as well as increasing the amount of comprehensive information about company successes. The financial reporting was primarily focused on producing historical data. A business area director of the parent company emphasized that earlier systems were only able to produce information on performance several weeks or months after the actual occurrence. The director complained that before the BSC implementation they merely investigated historical data. According to the director, the case company was not able to affect the performance proactively before actions, they were only able to note the historical performance afterwards:

> Our accounting information belonged primarily to the museum [. . .] (The respondent is laughing and corrects himself) [. . .] it took weeks and months to get concrete and constructive information. We monitored a lot of historical data in any period, not that we could affect issues anymore, but just to recognize what had happened already (A business area director).

The third reason for BSC implementation was that the parent company has different business areas, which are in competition with each other. One business area director suggested that there was an attraction to piloting BSC implementation, because the pilot business area wanted to express their industrial sector's modernity to the other business areas by implementing BSC first.

The IT director of the group suggested that using a BSC also allowed the case company to analyze causality between measures. The BSC was used for constructing strategy maps:

> We have drawn a strategy map where we have tried to describe clearly how the different perspectives' critical success factors and their measurement affect each other. We started with personnel, continued to process, then customers and finished with the financial perspective. We found the causalities there (between perspectives and measures) (IT director of group).

As we noticed, the primary reason to implement a BSC process was internal. They also had external influences on the selection the BSC software because one of their biggest customers utilized the same BSC software. However, we consider that that customer was not a major external stimulus to implement and that the customer was more of a partner. This is because it was not a requirement of the customer's internal reporting system, that the case company should utilize specific BSC software. The IT director appreciated this partnership because it enabled them to become familiar with how the customer had utilized this software.

Reasons to integrate the BSC and EMS. The interviewees revealed that they had integrated the environmental targets into the BSC. As noted earlier, the company had several different information systems, and this was the main reason for the environmental measures being integrated into the BSC. The managers interviewed were generally impressed by the benefits of a single data source which includes the data from several different areas, one key area being related to the environment. According to the quality manager of the parent company, this ensures that measures are comparable, and at the same time available for all authorized users:

> If we have a single information system which is used for collecting data, it is worthwhile to conduct all aspects of reporting by this information system (Quality director of group).

The environmental issues were previously reported through a separate IS, but now environmental performance is internally reported on the BSC. However, external reporting of environmental performance is still conducted through the annual report and an additional environmental report. The annual report contains a section concerning company environmental issues and performance. The environmental report is more detailed and it presents environmental policy, objectives and achievements. This environmental report is not published annually but every second or third year. According to the quality director of the group's executive, the case company had two reasons to integrate environmental and annual reporting. First, annual reports are widely read documents, which helps to widen publication of environmental issues. Secondly, it is cheaper and easier to have just one report.

Discussion

We could analyze the forces by utilizing several different theories such as institutional or stakeholder theory. We found different rules and routines and differing effects on institutionalization (Burns and Scapens, 2000; Ribeiro and Scapens, 2006). For instance, the environmental target setting was based on the "measure effect on profitability" rule. On the other hand, the company had measurement and certification routines. However, we did not consider it worthwhile to explicitly utilize institutional theory because it has been used in many different earlier studies.

The discussion section analyzes which forces affected EMS and PMS implementation, and how these forces changed both the reasons behind, and the manner of, the integration of the EMS into the PMS. Finally, we investigate how cultural issues affected matters, and the managerial implications and limitations.

Forces affecting EMS and PMS

The initial forces affecting EMS came mainly from outside of the organization when the company tried to obtain an environmental certificate. This certification required a

more systematic consideration of environmental issues. The purpose of certification was primarily to sustain the corporate image (Pan, 2003). Certification is considered to benefit the organization by inspiring a continuous improvement of processes (Lozano and Vallés, 2007). Therefore, the certification was the primary initiative force for developing environmental management practices.

Another external force came from environmental authorities (Davidson and Worrell, 2001; Lozano and Vallés, 2007; Magrini and Lins, 2007) who require different environmental documents when companies are for instance planning to construct or alter production plants. The case company also wanted to legitimise operations and to comply with environmental regulations (Bansal and Roth, 2000; Darnall, 2006; Rothenberg, 2007) which was another reason for establishing environmental management practices.

The company did not have strict financial or environmental reasons for EMS implementation (Lozano and Vallés, 2007; Magness, 2006; Magrini and Lins, 2007), but financial issues were always thought to be significant. Therefore, our results contradict Pan's (2003) results, who did not find that organizations have achieved cost reductions or an improved profit margin after ISO 14000 certification. This study clearly showed that the case company's one primary motive to implement environmental management and a BSC system was directly related to cost efficiencies. They also considered it beneficial to be part of the new mainstream thinking and risky to miss potential opportunities (Malmi, 1999). The case company thus intended to reduce uncertainty by adopting the new managerial innovation, i.e. EMS system (DiMaggio and Powell, 1983).

The BSC implementation was primarily driven by internal forces (Malmi, 1999). Management was not satisfied with the company's fragmented PMSs. The focus of BSC implementation was thus to improve the PMS (Malmi, 2001) and to reinforce the measurement culture. We also found an external reason for implementing BSC because one of the case company's customers had implemented BSC reporting and recommended the software (Callens and Wolters, 1998; Pan, 2003). The fad and fashion motive of PMS implementation – although important in some earlier studies (Malmi, 1999) was marginal in our case company. Table I summarizes both EMS and PMS forces.

Our results are similar to those of Bansal and Roth (2000) and Rothenberg (2007) who found that an ecological agenda competes with other functional agendas. This means that environmental investments, as with other operational and strategic investments, have been made if they are able to improve profitability. On the other hand, we found that the primary motive for establishing both EMS and PMS was to obtain an environmental certificate, maintain competitiveness and improve profitability (Bansal and Roth, 2000). These issues were considered to improve as result of more efficient energy consumption and decreased amounts of waste (Bansal and Roth, 2000).

The changing source of driving forces

This study contributes to the theoretical literature by showing that motivational forces behind management systems can be different and the strength of those forces can change over time, even though the different management systems have been integrated into a single PMS system. This is not emphasized for instance in the Bansal and Roth (2000) or Darnall (2006) studies which highlighted different motives for environmental management, but did not consider the time dimension of the forces. On the other hand, our results accord with those of Bansal (2005) who found a significantly decreasing impact

EMS forces			PMS forces	EMS and PMS integration forces
External	Internal	External	Internal	Internal
Certificates (continuous improvement)	Euro driven/cost focus culture	One main customer	BSC's ability to communicate values, vision and strategy	Fragmented management IS
Environmental authorities	Measurement culture		BSC's ability to summarize and visualize information	Internal competition between business areas
Image	The success of environmental actions		Euro-driven culture	Measurement culture
			Fit to measurement culture	External
			Fit to process ideology	
			Fragmented management IS	
			Internal competition between business areas	
			Need to non-financial measures	
			Problems of the historical nature of financial data	
Time frame	I		II	III (EMS & PMS integration)
	I II EMS forces			

Table I.
The forces of the implementation and integration of the EMS and PMS

of the media on corporate sustainable development over time. Therefore, the case company's EMS implementation forces changed from being image and mimicry-related to being more internal efficiency related over time. However, Bansal (2005) only explores sustainability issues when she is not considering EMS and PMS simultaneously. We propose that simultaneous investigation is important because an EMS can be integrated into other PMS.

We found that the forces driving environmental management changed from external forces to internal ones over time (Table I). So, our results share similarities with those of Malmi (1999), who found that the driving forces behind activity-based costing diffusion changed over the course of diffusion. Malmi (1999) found for instance that an efficiency choice may explain the earliest adopters' motives, whereas trend-setting organizations exert considerable influence in the take-off stage and then diminishing influence later. However, we observed this change of forces occurred in a single case company and in a different application, i.e. environmental management. Furthermore, we found that the forces can also change from fashion and fad (external) to an efficiency motive (internal) which is an extension to Malmi's (1999) study.

Integration of EMS and PMS

The case company integrated its environmental indicators into its BSC (Epstein and Wisner, 2001; Figge *et al.*, 2002; Kaplan and Norton, 2005; Magrini and Lins, 2007 see also Table I) because it wanted to centralize and update its information systems. The integration of BSC and environmental management issues enabled it to demonstrate the financial superiority of pollution prevention measures relative to end-of-pipe measures (Bartolomeo *et al.*, 2000). The understanding of the relation between environmental actions and financial performance is important, because Bartolomeo's *et al.* (2000) study revealed that when costs were revealed they strengthened waste minimization and similar initiatives.

The EMS and PMS integration has rarely been investigated (Wagner, 2007) although for instance Vaivio (2008) recommends different hybridizations. Our study confirms Wagner's (2007) results that integration of an EMS and a PMS is potentially advantageous. Some of the results of this study are, however, also contradictory to Wagner's (2007) results; as we found that integration was considered to improve efficiency more than image related factors. Furthermore, this study revealed evidence that EMS and PMS integration was driven by only internal forces, without the external.

Company culture and its effect on EMS

The case company is more a finance-driven than a stakeholder organization (Bartolomeo *et al.*, 2000; Enquist *et al.*, 2006). Such an organization has a primary focus on shareholder value and the bottom line, whereas a stakeholder organization would see financial performance as only one factor in meeting the needs of a variety of stakeholders (Bartolomeo *et al.*, 2000). According to Bartolomeo *et al.* (2000) and Byrch *et al.* (2007), finance-driven companies emphasize initiatives such as waste minimization because it offers immediate pay-offs. In our study, the Euro driven nature of the company was repeatedly emphasized. For example, all the investments – including environmental investments – had to improve profitability. Furthermore, the company has targets for waste and electricity consumption, which both very directly affect its costs and profitability.

The finance-drive approach has also been called the eco-efficiency approach (Dias-Sardinha and Reijnders, 2005; Rintanen, 2005; Bansal and Roth, 2000). This approach considers environmental issues because they are also cost efficiency questions and may consequently improve both environmental and financial performance. On the other hand, the case company's environmental management approach is close to Byrch's *et al.* (2007) promoting the business group or Enquist's *et al.* (2006) shareholder strategy type. According to Byrch *et al.* (2007), organizations within a group emphasize the economic aspect (i.e. the most important responsibility for a business is to prosper) and serve notice that the environment must be accounted for in business terms and discussed in the language of business (i.e. maximizing returns or efficient use of resources). However, these organizations usually recognize the necessity of maintaining environmental quality to ensure their employees wellbeing.

Therefore, one reason for changing EMS forces can be derived from the case company's cultural shift. It changed more in a "Euro-driven" culture in the mid 1990s. According to the rules of "Euro-driven" culture, all investments should affect profitability, and environmental investments are no exception. This culture also affected the selection of environmental indicators, in that they were selected for their relative impact on profitability.

Practical implications

In addition to its theoretical contribution, this study also has practical implications. Firstly, if addressing environmental issues is recognized as capable of improving the financial performance of a company, then it follows that it is possible to improve profitability and environmental performance simultaneously. Secondly, when environmental measures are integrated into other PMS, such as a BSC, they may be monitored and discussed in steering groups more precisely, because they are included in the major reporting media of the company. Thirdly, a BSC can also be worthwhile tool for collecting the information concerning the environmental performance. Fourthly, the successful construction of EMS and PMS requires intense co-operation between different organizational functions. These functions were those of the quality director, IT director, business unit managers, business area directors, controllers as well as both group and subsidiary CEOs in the case company. Fifthly, the impetus for EMS and PMS can emerge both from outside and inside of the organization and they can change over time. Finally, in practice, many issues that are commonly thought to be separate and thus studied separately may be intertwined and it worthwhile studying in tandem in order to achieve a more thorough understanding of what "really" happened out there.

Limitations

This study has its obvious limitations which can be considered in future studies. One limitation of the study relates to the methodology utilized. Owing to the use of qualitative case methodology, the results can be theoretically generalized only in a contextual way (Enquist *et al.*, 2006; Lukka and Kasanen, 1995). Therefore, we believe, that even companies with moderate similarities, like firms in a food industry, with a similar culture or with a similarly fragmented IS can learn from this study. In future, our foundations could be enlarged through field study methods including several case sites or statistically tested by utilizing wide survey data. Another limitation of our study may relate to the number of interviewed representatives. However, both

researchers participated in all interviews, and as a result, we consider that we were able to get richer data than if we had used only one interviewer. Moreover, the researchers felt that they had interviewed all the managers whose views were really relevant to the research question, and that further enquiries would not have revealed any more useful information. The last limitation relates to the data-gathering period. We consider this study to be a longitudinal one, although we were able to gather data not during but only after the implementation processes of two intertwined managerial issues. On the other hand, the construction of an EMS preceded the PMS and consequently the interviewees might have remembered the issues relating to performance management topics better. We tried to diminish the effect of this weakness by conducting several different interviews and through triangulation.

Conclusions

The discussion section describes the theoretical contribution and limitations of the study. Theoretical contributions relate to the analysis of the implementation forces behind an EMS and a PMS, plus the investigation of the change in source of driving forces and the simultaneous analysis of the EMS and PMS.

In addition to EMS impetus studies, this study also contributes to EMS and PMS integration literature, which has been an area rarely investigated, and often in a rather limited fashion (Epstein and Wisner, 2001; Figge *et al.*, 2002; Wagner, 2007). Although this study did not study the integration process explicitly, we were able to find the different forces behind EMS and PMS implementation and the integration of these systems.

This study confirms the proposition of Ahrens and Chapman (2006) that similar management practices (i.e. EMS and PMS) can be used for different purposes and the meaning of control may change with changing objectives. Therefore, a BSC was utilized for the centralization of a fragmented IS, to reinforce the measurement culture as well as to implement the environmental management process. On the other hand, the EMS was constructed to obtain an environmental certificate and for illustrating the causality between environmental and financial performance, as well as for comparing environmental performance between business areas. However, both management systems have similarities; their implementation was thought to affect financial performance and they maintained and reproduced the dominant organizational measurement culture.

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Appendix 1. Interviews in the case company

- Business area director of parent company, member of executive board of parent company (Interviewed August 29, 2006).
- Business area director of parent company, member of executive board of parent company (August 23, 2006).
- Business unit manager (August 22, 2006).
- Chief executive officer of group, member of board (November 3, 2006).
- Chief executive officer of parent company, member of executive board of group, vice CEO of group (December 8, 2006).
- Controller of parent company (August 22, 2006).
- Information technology (IT) director, member of group executive board (September 1, 2006).
- Quality director, member of group executive board, business area director of parent company (August 24, 2006).
- Quality manager of parent company (May 17 and August 29, 2006).
- Technical director of parent company, member of executive board of parent company. Interviewed (May 17 and September 25, 2006).

Appendix 2. Summarized (shortened) semi-structured themes of interviews

Definition of sustainability, forces

- How you define the sustainability concept? What kind of issues/areas does it include?

- Why do you measure? External or internal forces or incentives to measure and develop?
- Stakeholders requirements sustainability reporting? Which stakeholders and what kind of reporting is required?
- Government role? Preferred role of government.
- Benefits and disadvantages of sustainability?

Implementation/selection of indicators

- Selection of the appropriate measures? Describe the process of selection.
- Participants? The selection of participants? Required qualifications of participants? Did you have any stakeholders?
- What kind of indicators do you have to measure sustainability? Do you have measures concerning the social, environmental and economic aspects?
- Do the indicators a) exist at a site/unit and at a corporate level b) differ between sectors?
- What do business units think about these indicators? How do indicators affect operations?
- Did you decide the target levels of selected indicators? How?
- For whom are targets determined? How do the targets affect compensation?
- Relationship between financial measures and social and environment measures? Have you thought of causalities? If yes, what kind of causalities is found?

Performance management systems (PMS)

- Why did you start to implement PMS? Steering committee role in the selection of PMS?
- What kind of experiences do you have? Pros and cons. Challenges during the process? Implementation success according to business units and a steering committee?
- Selection process of measures and perspectives? Participants
- Challenges of PMS (a) in Future?; (b) from the perspective of headquarters' steering group and board of company?
- Steering committee and board of directors PMS utilization?
- Why sustainability indicators are integrated into PMS?

Change

- Obstacles/challenges in developing sustainability issues? Structural vs behavioral?

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