

Environmental Management Can Pay Off: Results from a Qualitative Study in the Austrian Transport and Logistics Sector

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Abstract

Sustainability has become a central business focus. However, as businesses are (and have to be) orientated at profit maximization they have to evaluate alternatives carefully. Road transport is still a serious pollution factor. Looking at large companies of the Austrian transport sector, we analyse the sustainable behaviour and compare it with other sectors. Moreover, we discuss the importance of economical impacts on environmental management decisions. A case-based approach using multiple field studies with face-to-face expert interviews was used to identify and evaluate environmental practices and to discuss the role of profitability among other influencing factors like regulations or stakeholder interests. Due to various reasons like missing end-user contact and high competitiveness, the transport sector performs less environmentally-friendly than other sectors. We can confirm that the economic factor is crucial for companies' decisions on the implementation of environmental practices. Nevertheless, we will demonstrate on selected cases how environmental measures are contributing to the overall business performance. The number of cases follows recommendations from renowned literature. However, due to its limited numbers of cases the qualitative research might lack external validity. We demonstrate how practices can simultaneously protect the environment and contribute to companies' efficiency and effectiveness. Furthermore, implications are given to politics on how to support transport companies in this regard. Because there is little evidence of tangible environmental practices in the sector of transport and their impact on the business performance, this study is both exploratory and explanatory in its nature.

Keywords: Sustainability, Environmental Management, Transport Sector, Sustainable Supply Chain, Retail Sector

1. Introduction

Sustainability has more and more become a central business focus in times where most societies realise the critical industrial influence on both environment and human health. Not only policy makers claim pro-active performance from companies but also various members within supply chains expect their business partners to reduce negative impact on environment and society. Furthermore, customers become more and more sensitive to environment- and social-friendly products and services. Companies, of course, realise this development and not only regard it as opportunity for new markets and ways to distinguish from competition but also start to sense possibilities of improving their businesses' efficiency and effectiveness by means of sustainable measures.

In this article, we explore the central meaning of the profitability within firms' decision making processes concerning the implementation of environmental-friendly measures. We thereby follow Carter and Rogers who argue the supremacy of the economical factor within the triple bottom line of sustainability (Carter and Rogers 2008, p.368). Operating in a very competitive environment, firms are often forced to base their business behaviour, including decisions on sustainability issues, on economical decisions. Especially the road freight transport sector is characterized by high competition and price sensitivity (Kummer et al., 2011). Besides, the position in the supply chain influences the degree of sustainable behaviour due to pressure from companies upstream or downstream (Handfield et al, 1997; Walker et al, 2008, p.72).

We focus on the Austrian transport sector and compare it to the retail sector. For this paper, we comprise all companies that conduct freight transport under the term 'transport sector'. Furthermore, we concentrated our research on large companies as small companies often lack resources for implementing costly measures (Fürst and Oberhofer, submitted). Consequently, larger companies are often more innovative in terms of their environmental performance (Dahlmann / Brammer / Millington 2008; Brammer et al 2011; Hillary 2004). A case-based approach using multiple field studies with face-to-face expert interviews was used to identify and evaluate environmental practices and to discuss the role of profitability among other influencing factors like regulations or stakeholder interests. In a further step, we explore how firms can improve their business performance by introducing environmentally-friendly measures. By analyzing (successful) examples, we demonstrate how practices can simultaneously protect the environment and contribute to companies' efficiency and effectiveness. Furthermore, we aim at identifying the specific characteristics of the transport sector concerning environmental protection and explain differences to other industries. Finally, implications are given to politics on how to support road freight transport companies in this regard.

On the basis of findings from literature review we hypothesize that

- considering environmental protection measures road freight transport sector has some catch up-work to do compared to the retail sector
- among various factors influencing the implementation of environmental management, the economical factor is the most important
- due to the implementation of environmentally-friendly measures firms can improve their effectiveness and efficiency resulting in an improved business performance

The paper is divided into four parts. In the first section, we provide a theoretical foundation of sustainability and environmental management. Furthermore, we argue the central meaning of the economical factor out of a number of other influencing factors and describe the situation within the freight transport sector. In part two and three, the empirical method and results of the case studies are presented. Finally, we draw conclusions and discuss them with findings of the literature review.

2. Theoretical Approach

A widespread definition of "sustainability" was developed by the UN Brundtland Commission in 1989, determining sustainable development as "[...] development that meets the needs of the present without compromising the ability of future generations to meet their own needs." (UN 1987, p.54). Especially for companies, however, it is often difficult to identify present and future needs, to balance responsibilities to multiple stakeholders or to determine their role within this broad perspective of the definition (Hart, 1995; Starik / Rands, 1995). Starik and Rands aimed at further specifying the meaning and reshaped the definition of sustainability to "[...] the ability of one

or more entities, either individually or collectively, to exist and flourish (either unchanged or in evolved terms) for lengthy timeframes, in such a manner that the existence and flourishing of other collectivities of entities is permitted at related levels and in related systems.“ (Starik / Rands, 1995, p.909). As the long-term purpose of private sector companies is – and has to be – the existence and growth, actions that affect other present or future entities have to be matched with their own business strategy in order to stay competitive.

In recent years, the business and management literature focused increasingly on an integration of social, environmental and economic responsibilities to define sustainability. This is broadly known as the triple bottom line approach that suggests a balanced interplay of three “pillars” within this triangle. At their intersection, activities are assumed not only to positively affect the ecological or social environment but also to result in economic benefits (Elkington, 1998 / 2004). Carter and Rogers, 2008, p.368) further developed this idea and added four supporting facets of sustainability – risk management, transparency, strategy and culture – in order to build an adopted framework. Furthermore, they slightly shifted the weighting and inter-correlation of the three “pillars” towards a more decisive role of the economic performance. It is argued that environmental and social intentions have to be clearly aligned with economic goals of the company and that any initiatives that do not consider a firm’s overall strategic and financial purposes are socially irresponsible (Carter / Rogers, 2008, p.369).

“Traditional” views link environmental challenges mainly to high costs and complicated propositions for managers as environmental initiatives are overshadowed by the total costs of those programs (Wally / Whitehead, 1995, p.46). And still, companies often associate environmental and social initiatives with high additional costs and negative results on business performance (Fürst/Oberhofer, 2011). Above that, many scientific models, lack the consideration of economic criteria at all (Carter and Rogers, 2008, p.361). Recent research, however, showed contrary findings. Hoffman and Bazerman note that social and environmental behaviour are sometimes profit-compatible and sometimes not and considering this trivial fact simplifies to convince companies to implement environmental or social measures that are mutually beneficial (Hoffman / Bazerman, 2005, p. 16). Examples for beneficial measures are widespread. Activities such as improving working conditions in warehouses (Carter et al., 2007), reducing of packaging material (Mollenkopf et al., 2005) or introducing more fuel efficient transportation (Carter / Rogers, 2008, p.361) can both reduce costs (e.g. health and safety costs, recruitment and labor turnover costs, energy costs) and improve sustainable performance. In addition, companies can benefit from proactively shaping for future regulations and enhanced reputation. Furthermore, many predict new win-win situations as energy prices will be exploding. Especially for economies that are highly dependent on imports of energy – like most European countries - the latest developments and future predictions are alerting.

Increasing pressure from customers and greater transparency allows stakeholders to compare products and services (Carter / Rogers, 2008, p.370). The environmental visibility of a firm is often reflected the amount of pressure it experiences (Bowen, 2000). Customers are often a driving force for green supply chain management practices. The decisive point is the position in the supply chain. Especially companies with end-consumer contact act sustainably and encourage suppliers to improve their environmental performance. (Handfield et al, 1997). In addition, customer demands taking a long-term supply chain perspective, influence environmental behaviour to a stronger degree than customer request that involve shorter timeframes (Walker / Di Sisto / McBain 2008; Thorpe 1994) emphasizes the importance and influence of NGO’s that demand sustainability for achieving environmentally measures on an overall basis in the economic world. Furthermore, it is necessary to consider that some sustainable initiatives, of course, may fail, but so do many other business initiatives like marketing campaigns, product developments or research projects. Important is to learn and profit from earlier mistakes for future projects (Carter / Rogers, 2008, p.370).

Semchi-Levi maps businesses actions along four explicit dimensions in order to classify them according to their sustainable impact and possibilities for business improvement (Semchi-Levi, 2010, p. 199). Measures that are beneficial for society or environment but not for the companies, have to be supported through government incentives, like tax incentives or financial support. Sustainable measures that help improve business performance are strongly desired. No regulations nor incentives are needed, though, information about those possibilities should be spread through research publications or trade fairs in order to encourage more companies to consider imposing specific actions.

Companies rapidly started to adapt to those new developments and perspectives of business research. A survey in 2004 on corporate responsibility reporting identified 68 percent of the top 250 companies of the Fortune 500 and top 100 companies in 16 countries considering social, ecological and economical issues in their sustainability report, whereas in 1999 the focus was primarily on environmental reporting solely (KPMG, 2005, p. 5). Not long ago, sustainability and corporate social responsibility was viewed as a way to improve companies' reputation and to distinguish from competition – a branding tool. Today, however, it goes beyond branding. Sustainable actions have become a value creating tool for companies through improving efficiency and saving costs (Semchi-Levi, 2010, p. 198).

The term “environmental management” (EM) refers to an environment-orientated management of a company (Müller-Christ 2001, p. 4). It involves all activities and decisions that are necessary to minimise the environmental pollution caused by the company (Baumann, Kössler & Promberger 2005, p. 17). At first, environmental management was hardly more than complying with related rules and regulations, although it was later suggested that win-win situations (for the company on one side and the environment on the other) were possible (Walley / Whitehead 1994).

Evaluating certification numbers is a widespread way to record the national or international status quo of implementation of Environmental Management Systems (EMS). The number of ISO 14001-certified facilities worldwide increased from 88.000 in 2005 to over 120.000 in 2007 (Peglau, 2005) indicating a significant trend towards an improving environmental-friendly behaviour. Beyond, there are thousands of companies that implemented EMS although not being certified by ISO (Darnall / Jolley / Handfield 2008, p.30).

Following globalisation, the idea behind the introduction of standards was to establish one single, internationally applicable norm instead of a tapestry of sometimes diverging individual regulations (Melnik / Sroufe / Calantone 2003); still, standards have been adapted to different degrees in different countries and parts of the world (Neumayer / Perkins 2004). Interestingly, being certified or not does not seem to make a difference to a company's commitment to the environment (Bansal / Hunter 2003).

Reasons for companies to implement environmental management are widespread. The degree of environmental management implementation in a company conducting regular road freight transport can be described as a function of general, external and internal influencing factors (Fürst / Oberhofer 2011). General factors include firm size (Aragón-Correa 1998, Hillary 2004, Dahmann / Brammer / Millington 2008; Brammer et al 2011) and sector affiliation. External parameters comprise regulations and stakeholder interests (i.e. the requirements of the society and customers) (Gunningham / Kagan / Thornton 2004). Besides, other companies in the supply chain or parental institution can influence the environmental behaviour of companies (Delmas / Toffel 2004). In contrast, internal factors cover the decision makers' attitudes (Ajzen 1991; 2005; Fishbein / Ajzen 1975; Sweet et al 2003; Plaza-Úbeda et al 2009; Fürst / Oberhofer / Dieplinger 2011) and

profitability. Profitability of environmental measures appears to be decisively as companies in competitive landscapes have to be oriented at profit maximization. Regrettably, costs and benefits in the context of environmental management are not easily quantifiable which, however, should not lead to the conclusion that they do not exist. In contrast, benefits will depend significantly on the company's environmental efficiency (Alberti / Caini / Calabrese / Rossi 2000). In sum – through the realisation of opportunities for increased revenues and reduced costs – a surplus can be generated (Ambec / Lanoie 2008). Boiral et al. showed that firms committed to environmental protection tend to record better financial performance than other firms (Boiral et al 2011).

These factors influence the degree of implementation of environmental management, which has consequences on the company's overall and environmental performance, profit and thus (effective) sustainability. Note that at this stage, we define sustainability in a broad sense – including social, ecological and economic aspects – aiming at the long-term viability of a company.

CO₂ can be defined as the most serious causer of greenhouse gas emissions (ICCP 2007). Transport is thereby one of the greatest source of CO₂. A study of the ICCP (International Climate Change Partnership) found that transport is responsible for 17% of the global CO₂ Emissions. Within the European Union this figure even rises on 24% (Eurostat 2011). Road Transport causes on average 77% of all national inland transports of the EU-27 countries. However, it is still unclear how the need, willingness and ability for environmental improvement is regarded in the transport sector (Thornton et al., 2008). The transport sector causes a lot of non-sustainable industrial processes. As a result the need for technological development to bring a growing transport sector in line with sustainability criteria may be greater than in any other industrial sector. (Roth / Kåberger 2002).

From the governmental perspective, the pressure for 'greening' road freight transport is very high, as the trade-off is at least three-tiered between: (1) the preservation of natural resources and the protection of the environment, (2) the interest of the population and (3) the indubitable utility and necessity of transport as an economic backbone with a direct correlation between GDP and road transport (Nijkamp, 1994).

Austria offers an optimal framework for our research as the country is an integral part of the European Union, with its highly comparable legislation and the Common Market. The World Bank rates Austria as high-income country (World Bank, 2010). Logistic indicator of 3 indicates a highly developed logistical infrastructure. As a consequence to its central location in Europe, Austria has to take the burden of frequent transit transport (north–south and east–west) (Giorgi and Schmidt, 2005; Skjoett-Larsen, 2000, p.385). Nevertheless, in a European comparison, Austria is one of the environmentally friendliest countries with CO₂ emissions clearly below European average (World Bank, 2010). The Austrian transport sector is mainly dominated small transport companies by total numbers of companies; however, workforce employment is equally distributed over the different-sized groups (StatisticsAustria, 2009).

3. Method and Data

A case-based approach using multiple field studies and face-to-face interviews to identify and evaluate environmental practices of transport companies and to discuss the role of profitability among all influencing factors was chosen. Our study was based on multiple data sources by combining primary interview data and secondary archival data. According to Eisenhardt, case study approach is appropriate for theory development (Eisenhardt, 1989). Yin states that case studies can be exploratory, descriptive or explanatory. Because there is little theoretical evidence of tangible environmental practices and their impact on the business performance, this study is both exploratory

and explanatory in its nature. Furthermore, case study approach is best to capture the richness of individual settings (here: individual companies) that are too complex to be explored through survey or experiments (Yin, 2002). The case study approach with multiples cases is common in purchasing and supply management research (Dubois and Aurajo, 2007). In addition, face-to-face interviews allow in-depth insights into decision making processes and backgrounds. The fact that costs and economic consequences are sensitive topics for a company supports the choice of a qualitative approach.

The primary data collection was carried out through semi-structured interviews to ensure the necessary flexibility when several companies with different characteristics are being surveyed. Based on our theoretical framework, an interview protocol was created. Respondents were initially asked to 1.) outline the historic development of environmental protection of their company. They were then requested to 2.) evaluate specific environmental practices of their company in terms of costs and benefits. Finally, they 3.) compared the importance of profitability to other influencing factors on environmental management like regulations, stakeholder and customer interests or managers' attitudes and predict future developments for their company and the whole sector. In order to allow comparison across all companies and industries, each respondent was confronted with the same interview protocol. It was sent out to the respondents in advance to allow them to become familiar with the content. Interviews lasted between 45 and 90 min. They were tape-recorded and completely transcribed. Additional follow-up questions were sent by email in order to clarify contents of the interview.

An important step in case studies is sample selecting. This decision involves setting, people and social processes (Miles and Huberman, 1994). We therefore searched for large Austrian companies that have integrated environmental practices. Furthermore, we targeted the transport industry – and retail in comparison – because they are highly competitive industries and experience high rates of technological change. Respondents were identified by relying on public database and expert opinions. Information was collected by studying company websites and expert interviews with the environmental manager of each firm. The face-to-face interviews were conducted in late 2011 and early 2012. A cross-industry-case study was chosen in order to achieve higher validity. Yin (2002) argues that, in general, 6 to 10 cases provide evidence about supporting or rejecting hypotheses, while Eisenhardt (1989) recommends 4 to 10. Accordingly, our selection falls within these recommendations.

To further enhance internal data validity and reliability (Yin, 2002), we additionally collected secondary data, such as company reports and information about sustainable strategies from corporate websites. The data of each case study was analyzed individually by company and in cross-case analysis. By 'within-case study' evaluation methods of environmental practices and their effects on the business performance can be made transparent in a specific context. On the contrary, cross-case analysis supported us in further developing a general model of influencing factors and their specific weight in implementation decisions.

4. Results

The data of companies of the transport sector will be analyzed anonymously following a certain structure:

- Basic company description and development of environmental management
- Evaluation of different influencing factors: the role of the economical factor compared to other factors (regulations, stakeholder requests etc.)
- Illustration of specific cases/examples of environmental measures and their effects on the business and environmental performance
- Problems and Outlook

In a further step, findings of cases from large companies of the Austrian retail sector are presented. Eventually, results will be compared in a cross-case analysis.

Company A

Company A is a family-owned, world-wide operating freight forwarding company in Austria. Its core businesses are land transport, air and sea freight and logistics solutions. Initiated by customer requests sustainability is central part of the corporate identity since 2007 and strongly supported by the CEO. Integrated into the mission statement they aim at significantly reducing the company's resource consumption in order to take responsibility and be competitive in the long-run.

Profitability is by far the most important factor in terms of the implementation of environmental management decisions. Therefore, only measures that promise to be profitable in the long run are realised. Regulations (e.g. truck tolls or petroleum taxes) are regarded as essential and are commonly accepted.

Company A supports environmental protection in the fields of energy, emission, transport and storage as well as waste reduction. Focusing on emission reduction and optimization of transport and storage we present selected cases of environmental measures in the following section: In 2011 a climate-neutral logistics hall was opened saving 90 tons of CO₂ emissions per year by replacing metal panels, using energy-friendly heating pumps and renewable electricity. Promoting railroad transport they co-operate with other companies on using multi-modal transport modes. Consequently, 9,000 tons of CO₂ can be saved per year, that equal 15,000 truck movements or 1.1 Mio. kilometres on the motorway and 400,000 litre diesel fuel. Additionally, the company bundles transport movements with other countries resulting in optimized capacity utilization. As a consequence, they can save about 900 km road transport a year which affects both profitability and the environment positively.

Although environmental management is regarded as very important it does not reflect the core competence of company A. Nevertheless, environmental protection requests of customers are increasing resulting in pressure and complications as they are often not willing to pay for this additional value. Being oriented at profit maximization some projects on ecological-effective measures had to be rejected after economic evaluation.

Company B

Company B is a former state-owned logistics service provider operating mainly in south-east Europe. Spinning off some years ago, they find themselves in a challenging period of transition adjusting the company to the framework of a free-market system. Although responsibility for the environment is listed in their mission statement, sustainability appears to be of minor concern in a time where they face a loss-making situation.

Nevertheless, an "environmental program" was initiated four years ago resulting in some supporting measures. Thereby, the economical factor was the exclusively decisive argument.

Regulations are regarded as very important and suitable for improving the overall environmental situation. So far, except for the possession of certificates, no serious customer requests were monitored. According to them, the exclusively determining argument for product offering and tenders is still the price.

Yet, environmental measures concentrated on two main areas: shifting transports from the road to the railway and improving employee behaviour. Latter comprises waste reduction, energy use optimization, ventilation improvement (permission of indoor smoking) and driver education. By realizing a project at a specific site focusing on minimizing stand-by times of employee work stations, 50,000 to 100,000 Euros are saved per year. By trying to shift transports onto the railway they aim at contributing to the overall goal of emission reduction. However, in order to be competitive, prices had to be risen resulting in an economical advantage of road transport.

A main problem concerning the implementation of environmental measures is the heterogeneity of the whole company group. Decision finding for the realization of projects is often an interminable process, especially in times where they face this difficult economical situation. Another basic problem is seen in the difficulty of measuring costs and benefits of environmental measures.

Company C

Company C, an internationally operating firm, is one of the leading providers of integrated transport and logistics services. Its core businesses are road, air and sea freight as well as comprehensive logistics solutions and global supply chain management from a single source.

Environmental management is of special significance for the company and integrated in the corporate identity for more than 20 years. Environmental activities are strongly supported by CEO resulting in stable and successful development in the long-run. As a consequence, the environmental activities of company D are regarded as pioneers in the transport sector. Their sustainability activities include all modes of transport and business sectors.

Profitability is the main argument for being sustainable. Nevertheless, also regulations are regarded as essential. They motivate Company D to find innovative measures resulting in competitiveness in the long run.

Since 2010, a new “chopped goods combustion facility” replaces the old “oil heating system” at one site. Consequently, 187 tons of CO₂ can be saved per year. At another site, the existing oil heating system was converted to a gas heating system and thus saves approximately 38,000 litres of heating oil per year. Additionally, company D is realising enormous possibilities of carbon saving by intelligently linking together the various modes of transport. Thereby, company D reduces the CO₂ emissions by around 75%. Further improvements are achieved by making increased use of modern, more energy-efficient vehicles and by increasing the proportion of energy from renewable sources. Thus, they implemented three “natural gas” vehicles in their fleet (1,1 Mio tones CO₂ reduction a year).

Besides integrating sustainability into the company they also aim at influencing their customers in being and thinking more environmentally friendly as they are mainly responsible for an eco-progressive supply chain.

Company D

Company D is a globally operating family-owned company specialized in sea and air freight, trucking and warehousing. Though regarded as essential by the CEO, sustainable aspects are only partly integrated in the corporate identity and they do not identify long-term goals. Since 2008 environmental management plays a decisive role in the company.

Performance improvement that will result in cost benefits is the exclusively pivotal argument for integrating environmental measures. Regulations are regarded as important. Additionally, a positive reputation is co-decisive for implementing environmentally friendly measures.

Environmental protection measures supported by the company comprise emission reduction, conservation of energy and natural resources as well as staff motivation.

By implementing a new free cooling-system 38,000 kWh are saved per year. Additionally, 8,500 tons of CO₂ are reduced yearly by replacing a gas-fired boiler by an energy friendly condensing boiler. Focusing on environmentally friendly means of transportation (e.g. railroad transport) 11,000 tons of CO₂ can be saved per year. Fuel efficient driver trainings reduce the fuel consumption by around 5,500 litre yearly.

A main obstacle to realize a holistic environmental system is the cooperation with companies from countries where the development of environmental awareness is immature. Furthermore, the difficulty of measuring costs and benefits has proved to be particularly problematic.

Company E

As a specialist for transport networks and contract logistics company F has its own extensive groupage freight network in Austria and CEE. They offer a wide range of transport and logistics services. Though sustainability and resource preservation are of essential concern all environmental aspects are outsourced.

Emission and waste reduction as well as energy optimization are communicated as important and part of the corporate image in order to improve stakeholder confidence. However, specific examples of environmentally friendly measures are not monitored and could not be given.

Company F

Company F is a family-owned freight forward company with 16 sites in Austria and CEE. The company is specialized in offering “innovative logistics solutions for specific sectors” and is operating in various niche markets.

Sustainability is integrated in the corporate identity since 2009 and convincingly supported by the corporate management. One of the main goals of company F is to incorporate principles of sustainable development and eco-efficiency into their business strategies in the long run.

Profitability plays the major role for implementing environmental measures. Nevertheless, customer requests are very important as they are demanding environmentally friendly transport movements. This attitude is transferred into an increasing number of tender offers. Company F exclusively implements profitable measures. A decisive but necessary factor is the regulatory framework.

The environmental activities of company G are integrated in the fields of energy, emission, transport, employees as well as waste reduction. Major contributions are primarily made by consuming renewable energy ('green electricity') and are using alternative propulsion technology for their vehicles. Furthermore, they train their drivers in fuel-efficient behaviour. As a result, the overall fuel consumption was reduced by about 475,000 litres per year. Additionally, 747 tones of CO₂ were saved.

Company F seeks to pursue a comprehensive approach to protect the environment by offering services that combine economical and ecological goals.

Company G

Company G is a family-owned Austrian company that is specialized in European full truck loads. First approaches to environmental thinking were initiated in the the 80s where the company started shifting transports from road to rail. Later, the environmental activities were further intensified and became an integral part in the company's strategy. As a consequence, company D is considered as one of the pioneers of environmental practices in the transport sector today.

Profitability is the decisive factor in terms of the implementation of environmental activities. Nevertheless, the influence of regulations and customers as well as the social acceptance are regarded as essential.

In the fields of energy, emission, transport and waste reduction environmentally friendly activities are realised. By offering environmentally friendly transport solutions (e.g. the shifting from road transport to railway and "short-sea shipping") more than 125,700 tones of CO₂ were reduced per year and empty mileage could be minimized. The use of renewable electricity reduced the energy consumption considerably.

Although environmental management is integrated in the corporate identity it is not transferred into a holistic view. As a consequence, only projects with immediately noticeable profit maximization are primarily realised.

The retail sector as 'control group'

In order to allow cross sector evaluation, we also interviewed four large companies from the retail sector. Selected results of all four interviews are combined and presented in the following section.

Sustainability appears to be deeply rooted in the corporate identity of the companies since decades and is characterized by a holistic implementation on all company levels. Nevertheless, the importance of sustainable orientation is further increasing. All interviewed companies define and communicate specific goals, e.g. in terms of CO₂ reduction or energy savings, which they aim at reaching in a specific time range. Although the economical factor is central for implementation decisions, the companies are also willing to support measures in exceptional cases that might not be profitable. However, they always speculate to profit in other ways like image improvement or public relations. Generally speaking, they tend to take higher financial risks as they often aim at being pioneers. Customer request is strong as they operate at direct contact to end-users who are very demanding and sensitive for environmental issues. On the contrary, regulations appear to be ineffective as the companies are mainly "far ahead of regulatory framework in terms of environmental protection".

Especially over the last years, the topic ‘Sustainable Supply Chain Management’ became more and more important. As a result, they accurately choose partners and sub-contractors and expect high levels of sustainable performance from them. This thinking is transferred to many tenders. Moreover, it also enables them protect their brand from bad publicity due to suspect and incorrect behaviour of partners. This is also supported by co-operating with NGOs (and communicating it!).

They are realising a broad spectrum of environmental measures by concentrating on energy effectiveness in particular. However, they also focus on transport optimization and emission reduction (e.g. bundling of transport movements and ‘pooling’). Especially in Austria, they aim at further shifting movements of goods towards rail transport, thus, they are confronted with rising prices. The highest potential for the future is expected in new recycling methods, materials management and an intensified co-operation with end-users.

Cross case analysis

In order to compare single cases with each other we conducted a cross case analysis by opposing specific issues. On the basis of results from single case study analysis, we subdivided the sample into three main groups as follows:

- Group 1: “environmentally-progressive transport companies” comprising companies A, C, F
- Group 2: “environmentally-regressive transport companies” comprising companies B, D, E, G
- Group 3: “companies of the retail sector”

Companies of the transport sector were assigned to the group of “environmentally-progressive” or “environmentally-regressive” companies according the overall environmental performance from the single case analysis. Companies from the trade and industry sector served as a ‘control group’.

In a next step, we defined specific variables that reflect the degree of the implementation of environmental management (EM) on different levels. The three groups were evaluated concerning these variables on a 5-point likert scale (find specification below). Evaluation was performed on a subjective basis considering the results of the single case studies. Although only large companies of the different fields were selected, differences in firm size and turnover between the sectors exist. Consequently, that might result in a diverse environmental behaviour. The relation of sector, firm size and turnover was included into the subjective evaluation of the different groups.

Table 1 Cross Case Analysis

Group	Awareness for the importance of EM for the company	Rooted in corporate identity / holistic view	Influence of profitability on EM performance	Influence of customers on EM performance	Influence of regulation on EM performance	Long-term perspective of EM	Environmental performance
Transport Unprogressive (group 1)	1	4	1	4	1	4	4
Transport Progressive (group 2)	1	2	1	2	1	2	2
Retail (group 3)	1	1	2	1	4	1	1

Degree of distinction of variables: 1 = very strong; 5 = very weak

Our ‘control group’ shows a very progressive environmental performance that can be explained by a very strong awareness for the importance of environmental management in the long run. Sustainability aspects are deeply rooted in their corporate identity and holistically viewed. While regulations influence the environmental performance rather weakly, customer requests play a decisive role. Of course, profitability is of main importance; however, for exceptional cases non-profitability is accepted. On the contrary, for all transport companies the economical factor is the (only) decisive factor. Besides, regulations are seen as very influencing. Compared to other sectors, customers of transport companies appear to have weaker requirements in terms of environmental behaviour. However, progressive transport companies started to face customer requests and regard environmental protection as an important way of being competitive in the long run. As a result, sustainability became a key component of their corporate identity. On the contrary, regressive companies have not felt customer pressure yet resulting in a weaker environmental performance. Although awareness seems to be existent, sustainable aspects are weakly rooted in their philosophy and are not viewed holistically.

5. Discussion and Conclusion

Looking at large companies of the Austrian transport sector that conducts freight transport, we analyse the status quo of environmental management. We thereby focus on the importance of economical impacts on implementation decisions. By comparing findings from companies of the transport sector to those of the retail sector we aim at explaining the current situation and give implications for improvements.

Arguing the supremacy of the economical factor within the overall sustainable performance of a company we follow Carter and Rogers (Carter and Rogers, 2008). Furthermore we showed in our literature review that environmental management can be seen as a function of various factors that influence the implementation of measures to different degrees. Those factors comprise firm size, sector affiliation, decision makers' attitude, profitability, stakeholders and regulation.

Findings from the multiple case study approach show that, in general, the awareness for the importance of sustainability is strong on a 'trans-sectoral' basis. However, significant differences between transport companies and companies of other sectors concerning environmental sustainability can be monitored. Although transport, due to its high CO₂ emission, is regarded as one of the most serious pollution causers (ICCP, 2007; OECD, 2010), companies of this sector lack environmental measures compared to the retail sector.

As a result of our study we can explain this 'mismatch' referring to two main reasons: First, the position of the company in the supply chain influences the environmental behaviour. Companies with a direct contact to end-users face strong requests since many years. Consequently, they started to evaluate, implement and communicate sustainable behaviour a long time ago. However, transport companies seldom face this direct end-user contact. They mainly realised recently that sustainable performance does not always equal a 'necessary evil' but can result in an added value in the long run (Semchi-Levi, 2010, p. 198).

Secondly, the general structure of the transport sector (not only in Austria) does not provide a framework that supports being exceedingly environmentally sustainable. The sector is dominated by small and middle-sized firms (Eurostat, 2011) that often lack resources (financial capital, know-how, time, etc.) to address sustainability challenges. In addition, the sector is characterized by immense pricing pressure and small margins (Kummer et al 2011) resulting, besides an increasing number of bankruptcies (KSV 1870, Insolvenzstatistik), in a financial inability to invest in fields that do not reflect the transport companies' core business.

Analyzing the weight of various influencing factors on the implementation of environmental measures of single companies, we have to state that for transport companies the economical factor is by far most important. For the retail sector, however, we monitored that, although profitability is viewed as the decisive factor in terms of environmental protection investments in general, there are cases where measures are conducted that do not promise a positive return on investment. Nevertheless, the motivation to implement those measures can be argued by the expected improvement of reputation and public relations. Again, this fact can be explained by the position in the supply chain with direct contact to end-consumers. Furthermore, concrete goals, e.g. in terms of CO₂ emission reduction or energy savings are set and communicated.

Transport companies regard regulations as very important for the development of a sustainable future. On the contrary, retail companies see themselves as pioneers that are one step ahead of regulatory standards.

Nevertheless, a bunch of transport companies – the large ones in particular – realised the importance of sustainable behaviour in the long run and adapted their business strategy and communication. As a result, this will further strengthen their market position resulting in worse pressure on smaller companies. Like in retail companies they started to assimilate sustainability into the corporate statements, support a holistic view and communicate environmentally friendly behaviour and products.

One reason for this improved environmental behaviour might be the realization of the importance of being energy efficient in long run and being able to strengthen their competitiveness by adding extra value to products. Another approach to explain this development concentrates on the development of strategic supply chain management of powerful enterprises. Operating in a competitive environment and being exposed to social pressure, they have become very sensitive towards any kind of inadequacy in their supply chain that might endanger negative association with their brand. As a result they started to use their pre-eminence and influence both upstream suppliers and downstream partners to improve their sustainable performance and prevent the whole supply chain of being accused of irresponsiveness. Consequently, supplier management grew in importance and sustainable aspects are increasingly present in tender offers. This development is very likely to have affected the sustainable performance of transport companies that play an important role in supply chains as they act as ‘ties’ between various players.

5.1 Limitations to research

Given the empirical nature of our study, it is necessary to highlight some limitations. First, we examined two industries, thus generalizability is limited. Second, data was collected from one (or two) source inside the company: the environmental manager. Although this specific group of respondent is the most knowledgeable for our type of questions, it can cause problems of method variance. Third, the implementation of a greater range of environmental practices was the main criterion used to choose the respondents. This might lead to bias in responses and ultimately affect the results. Expert bias also limited the results since personal judgment might influence outcomes. Furthermore, despite the assurance of anonymity, respondents might be trying to protect the companies’ reputation.

We clearly put a focus on large and very large companies and their environmental behaviour. As consequence, small firms were not in the focus of our project. However, due to their size their driving performance is limited and so is their environmental impact. Finally, statements concerning small companies were only collected from experts of larger companies when they evaluated the general sector situation.

5.2 Practical implications

There are effective ways to raise the overall sustainable performance of transport companies. Executing planned route optimization, bundling of movements or investing in efficient warehouse are examples that enable transport companies to improve both their ecological and economic in the long run performance.

Of course, it is necessary for politics to provide a market framework that encouraged transport companies to improve their environmental performance. Nevertheless, it is evitable to consider the ability of being competitive. By supporting companies with financial aid (e.g. through tax abatement or subsidies) an improvement can be initiated. As small and middle-sized firms are dominating the sector and act as a backbone of many national economies, they have to be supported

in strengthening their sustainable performance in order to stay competitive in the long run. In a first step, it is the duty of superior associations like economic chambers to raise attention and spread know-how. Smaller firms could profit from synergy effects by pooling of movements. Furthermore, possibilities of successful examples of environmental measures have to be communicated.

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