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sustainability reporting in the logistics industry**

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Logistics Service Providers and Corporate Social Responsibility

Sustainability reporting in the logistics industry

Abstract

Purpose - The aim of this paper is to present a content analysis of Corporate Social Responsibility (CSR) reports published by Logistics Service Providers (LSPs), and to analyse factors influencing the level and scope of reporting. In order to address this objective, we show to what extent various social and environmental categories are covered in the CSR reports. We also investigate whether any differences in the use of CSR indicators can be found with regard to the use of a formal reporting framework, the size of a company, location of its headquarter, and ownership structure.

Design/methodology/approach - The study begins with a comprehensive literature review on the CSR policies and practices in relation to the field of logistics. A database of 350 international LSPs is compiled based on independent rankings of top logistics companies. Applying a content analysis approach, corporate websites and CSR reports are examined in order to investigate how sustainability is reported and what CSR-related indicators are published. Statistical analysis is carried out to provide insight into whether any differences in the use of CSR indicators can be found with regard to four key factors identified in the literature review.

Findings - Although aspects of sustainability are mentioned on corporate websites of most LSPs in the database (53%), only 13% publish formal CSR reports. This research identifies a variety of indicators used by LSPs and shows that the use of a formal reporting framework and the size of a company are the two main factors influencing the levels of CSR reporting in the sector.

Practical implications - This paper provides an insight into how transparently LSPs report on the sustainability of their performance. LSPs can compare their own CSR reporting approaches to the body of scientific literature and the findings presented in this paper, in order to adapt more general concepts and best practice evidence to their needs.

Social implications - By focusing on best practice in reporting of the environmental and social performance, this research can potentially improve the long-term sustainability of the logistics sector.

Originality/value - This is the first study providing a comprehensive review of the CSR reporting practice in the third party logistics sector. As such, this paper provides an important basis for CSR-related research in the field of logistics and supply chain management. Several areas for future research are also identified.

Keywords Corporate Social Responsibility (CSR), Logistics Service Providers (LSPs), CSR reports, sustainability, environmental and social performance indicators

Paper type Research paper

Introduction

The cross-functional nature of logistics makes it vital to every corporate strategy, particularly to actions and policies aimed at ensuring environmental and social sustainability of operations. There is a body of literature on Corporate Social Responsibility (CSR) issues in relation to logistics function, but the role of Logistics Service Providers (LSPs) in CSR programmes is yet to be explored. LSPs are in a good position to play a strategic role in supply chain-wide sustainability initiatives, because they connect and interact with other companies in the network. There are also significant economic drivers to LSPs' engagement in CSR initiatives. A better environmental and social performance is likely to have a positive impact on a company's bottom line (for example GHG emissions from freight transport are directly related to the amount of fuel used, thus can be easily translated into operating costs). Therefore, LSPs traditionally operating on very low profit margins, can consider initiatives aimed at reduction of environmental and social impacts as a means of improving their economic performance.

CSR reports are a way to communicate social and environmental actions and strategies to the public (Tate *et al.*, 2010). Companies are increasingly issuing periodical (usually annual), easily accessible CSR statements or reports, as voluntary reporting implies an organisation's maturity, consciousness, and willingness to become a good corporate citizen. However, there is a multitude of existing CSR definitions, often emphasising specific interests of authors, for instance focusing on the environmental or social aspects (Dahlsrud, 2006). As a result, organisations may perceive CSR differently, which, in turn, may lead to inconsistencies in implementation of relevant policies and reporting of CSR achievements (Porter and Kramer, 2006).

LSPs embracing on the sustainability agenda face a number of challenges, such as complexity of network-wide actions, a need to tailor solutions to individual customers, and to cooperate with other players in supply chains. Profit margins in the third party logistics market are low, thus only limited resources may be available to support the CSR initiatives. Industry-specific studies are particularly important for LSPs as their performance differs significantly from other service providers (Busse and Wallenburg, 2011). Several studies found significant differences between how businesses in different industry sectors communicate CSR (e.g. Sweeney and Coughan, 2008, Wanderley *et al.*, 2008). There is uncertainty as to whether LSPs make use of their CSR reports as efficiently as companies in other sectors, and what aspects of sustainability are emphasised when the reporting takes place. In CSR-related research carried out to date, LSPs are typically subsumed under the 'transportation' heading and considered together with passenger transport providers (e.g. Wanderley *et al.*, 2008, KPMG 2011). This research focuses specifically on CSR reports of LSPs, i.e. organisations to whom logistics is a primary value-generating activity, and attempts to provide an account of CSR reporting practices in the sector.

The aim of this paper is to present a content analysis of CSR reports published by LSPs, and to analyse factors influencing the level and scope of reporting. In order to address this objective, we show to what extent various social and environmental categories are covered in the CSR reports. We also investigate whether any differences in the use of CSR indicators can be found with regard to the use of a formal reporting framework, the size of a company, location of its headquarter, and ownership structure.

The remainder of this paper is organised as follows. The literature review presented in the next section commences with the introduction of the concept of CSR and discussion of its

relevance to the logistics function. We then highlight the importance of LSPs in the supply chain sustainability debate. The last part of the literature review presents issues regarding the measurement and reporting of CSR performance. Research design is outlined in Section 3. Section 4 discusses the key findings of our analysis. The concluding remarks, limitations of the analysis and direction for future research are presented in Section 5.

Literature review

CSR and logistics

CSR policies and programmes emerged in the second half of the 20th century, as a reaction to the criticism faced by companies focusing purely on economic performance and short-term profitability. Prevention of the depletion of natural resources, air, soil and water pollution, and labour practices violating human and social rights moved to the top of political agendas. As the external impacts of economic activity expanded from local and regional to global, corporations have realised that they need to show concern about environmental impacts and community affairs in order to ensure own future survival and long-term growth. CSR became ‘an inescapable priority for business leaders in every country’ (Porter and Kramer, 2006, p. 78). Despite its importance, there is still some uncertainty as to the actual meaning of CSR, and the relationship between CSR and sustainable development. In his widely cited paper, Carroll (1979), presents a range of views on the issue and concludes that ‘for a definition of social responsibility to fully address the entire range of obligations business has to society, it must embody the economic, legal, ethical, and discretionary categories of business performance’ (p.499). More recently, based on a content analysis of 37 CSR definitions, Dahlsrud (2006), identified the five key dimensions of CSR, namely focus on social, environmental and economic aspects, interactions with stakeholders and voluntariness of actions taken. As such, CSR can be viewed as the commitment of corporations to sustainable development, i.e. the terms CSR and sustainability from a business perspective can be treated as synonyms. This perspective is dominant in recent literature (Sauser, 2005, Bask *et al.*, 2013, Perry and Towers, 2013, Baumgartner, 2014, Maas and Reniers, 2014).

Markley and Davis (2007) argue that the focus on sustainability is a way to improve competitive advantage of a company and state that ‘the idea behind the 3BL (triple bottom line) paradigm is that a corporation’s ultimate success or health can and should be measured not just by the traditional financial bottom line, but also by its social/ethical and environmental performance’ (p.766). CSR is important from an internal company perspective, as it can provide e.g. increased employees’ loyalty, motivation and commitment to work and, thereby, improved productivity. It can also improve the work environment, with reduction in injuries and lost workdays (Schiebel and Pochtrager, 2003), as well as the external relations and performance of suppliers (Carter and Jennings, 2004).

Although the concept of CSR has a long history (e.g. Bowen, 1953), applications within logistics emerged only recently and are not yet widely adopted (Ciliberti *et al.*, 2008, Seuring *et al.*, 2008). Many researchers note that CSR considerations within the discipline have attracted relatively little attention from the academic community (Carter and Jennings, 2002, Murphy and Poist, 2002). Even where different dimensions of CSR have been investigated to some extent in the logistics literature, these topics tend to be considered in isolation, without consideration of their relationship to one another. This gap, first noted by Carter and Jennings (2002), still exist in the subject literature, despite a further decade of research.

The term Logistics Social Responsibility is often used by authors examining CSR issues in relation to logistics management (Carter and Jennings, 2002, Ciliberti *et al.*, 2008, Miao *et al.*, 2012). Poist (1989) proposed a number of dimensions comprising Logistics Social Responsibility, e.g. employee training, philanthropy, environment, urban renewal, workplace diversity, health and safety, and community issues. According to Carter and Jennings (2002), Logistics Social Responsibility comprises the environment, ethics, diversity, working conditions and human rights. The social sustainability area most covered in logistics research is labour rights (Emmelhainz and Adams, 1999, Carter and Jennings, 2002). Employment has been studied in terms of employment contract, compensations and wages (Carter, 2004). Carter and Jennings (2002) list minimising the time drivers stay away from home and paying adequate wages as examples of activities transport managers describe as socially responsible. Ciliberti *et al.* (2008) focus on wages, payment conditions and working hours, as well as on occupational health and safety issues in the supplier companies. The explorative study by Murphy and Poist (2002) showed that safe movement and storage of goods, as well as employee health and safety are of great importance to practitioners. Other social aspects of CSR discussed in the logistics literature include workforce diversity (Andre, 1995, Lynagh *et al.*, 1999), job satisfaction and working conditions (Min and Lambert, 2002), ethics (Razzaque and Hwee, 2002, Maloni and Brown, 2006, Pretious and Love, 2006, Miao *et al.*, 2012), and human and labour rights (Björklund, 2010). Perry and Towers (2013) present a discussion of a wide range of social aspects of CSR in their attempt to develop a framework for CSR implementation in fashion supply chains. Moreover, the area of humanitarian logistics has grown significantly over the last decade (Kovács and Spens, 2007). Johnson *et al.* (2011) analyse CSR reports of the Fortune 100 companies and show that disaster relief-related statements were present in 71% of the 84 available reports. However, the links between humanitarian or emergency logistics and CSR strategies of LSPs remain yet to be explored in the academic literature.

Environmental issues appear to be the most prominent aspects of CSR discussed in the recent academic publications (Wu and Dunn, 1994, Kovács, 2008, Seuring and Müller, 2008, Piecyk and McKinnon, 2010, McKinnon and Piecyk, 2012, Björklund and Forslund, 2013a, Cantor *et al.*, 2013, Lirn *et al.*, 2013, Winter and Knemeyer, 2013). The rise in environmentally responsible logistics operations has been a result of governmental regulations, economic considerations and increasingly strong market signals from environmentally conscious consumers (Goldsby and Stank, 2000, Scholtens and Kleinsmann, 2011, Tacke *et al.*, 2014). Environmental performance of logistics is often consistent with the bottom-line impacts: 'When a firm's objectives are cost minimisation and profit maximisation, continuous improvement of the process to reduce end-of-pipe contamination and focusing on pollution prevention makes sense' (Wu and Dunn, 1994, p.22). Customers' demands also contribute to the interest in environmentally responsible logistics practices. González-Benito and González-Benito (2006) show, that non-governmental stakeholder pressures exert a significant influence on the implementation of environmental logistics practices. In recent studies on procurement and subcontracting of logistics services, Scholtens and Kleinsmann (2011) and Large *et al.* (2013) found that purchasing companies place high value on environmental performance of LSPs. Therefore, 'to achieve business goals and objectives, a company must respond to increasing consumer demand for 'green' products, comply with ever tightening environmental regulations, and implement environmentally responsible plans as a good corporate citizen' (Wu and Dunn, 1994, p.21).

LSPs and their role in the sustainability agenda

Academic literature that focuses directly on the strategies and operational characteristics of LSPs is relatively scarce (Sum and Teo, 1999, Wolf and Seuring, 2010). This is also true for sustainability agenda in the third party logistics sector. As shown above, most studies examine CSR issues in relation to the logistics function of manufacturing or retail companies. This section highlights the importance of LSPs in the supply chain sustainability debate.

A large proportion of companies whose core competencies focus on functions other than logistics outsource their distribution to LSPs (Selviaridis and Spring, 2007). Increase in the outsourcing of logistics services and intense competition in the 3PL market, has led to a broadened scope of services offered by LSPs aiming to satisfy requirements of a wide range of customers (Sum and Teo, 1999, Marasco 2008, Busse and Wallenburg, 2011, Hofmann and Lampe, 2013). At the same time LSPs are constantly challenged with changes in their respective market environments, such as globalisation, deregulation and increasing competition (Marasco 2008, Busse and Wallenburg, 2011), rapid progress in information processing and communication technology (Marasco, 2008), growth of e-commerce (Delfmann *et al.*, 2002), widespread application of just-in-time strategy (Marasco, 2008), increasing importance of knowledge-based consulting services and need for establishing cooperation with other LSPs (Hofmann and Lampe, 2013), as well as pressures to lower their environmental impact (Wolf and Seuring, 2010). The term LSP covers a very diverse range of companies. LSPs differ in size, asset base, the range of services offered, geographical scale of operations and the type of goods handled (Delfmann *et al.*, 2002, Wong and Karia, 2010). A typical LSP serves more than one customer and operates multiple, often geographically disperse sites. Contracts tend to vary in length and service bundles included, and, as a result, the configuration of the logistics network evolves accordingly (Lukassen and Wallenburg, 2010). Consequently, any CSR activities and programmes are complex and need to incorporate multi-customer, multi-site solutions.

According to Busse and Wallenburg (2011) customers increasingly expect new and innovative solutions from their LSPs, thus they tend to be the driving force behind innovations in the 3PL sector. At the same time, recent years have witnessed the emergence of large LSPs that have capabilities to deliver sophisticated logistics solutions on a global scale. Those companies now strive to assume more strategic position within supply networks (Selviaridis and Spring, 2007). This resulted in a new, emerging role of LSPs as orchestrators of supply chains, serving a leadership function to help facilitate improvements and best practices across all nodes (Zacharia *et al.*, 2011). The critical positioning of LSPs to support the efforts to improve the sustainability of supply chain operations is acknowledged in the literature (Perotti *et al.*, 2012). Sustainable service offering can be viewed as a form of innovation or differentiation, i.e. establishing the organisation as different from competitors in a positive way. Hull and Rothenberg (2008) show that corporate social performance allows a company to differentiate, thus supporting the overall financial results. Therefore, CSR is likely to gain in importance as a way to enhance economic performance in the industry. Existing studies confirm that LSPs perceive for example green supply chain performance as being linked to a positive overall result (Perotti *et al.*, 2012). Sustainability, particularly environmental sustainability of LSPs is also expected to become more important as a supplier selection criterion (Wolf and Seuring, 2010). Sustainable performance becomes a significant element in LSPs' offerings and a vital part of their strategic planning (Björklund and Forslund, 2013b). CSR reports are a powerful means to demonstrate CSR achievements to potential trading partners and general public. Thus, this paper explores the important issue of CSR reporting in the logistics service industry.

Reporting of CSR performance

As discussed above, the concept of CSR is now well-established in both academic dialogue and business practice. There is a general agreement as to its contribution to obtaining and, more importantly, sustaining a long-term competitive advantage (Porter and Kramer, 2006, Markley and Davis, 2007). As a result, the area of measuring sustainability has been given increasing attention by both academics and managers. Virtually all companies collect at least some data reflecting their social and environmental impacts. However, only CSR-proactive businesses continuously measure, monitor and disclose the sustainability of their performance.

The availability and content of CSR reports depends on a number of factors. Literature suggests that companies who use an established reporting standard or framework tend to be more mature and committed to CSR reporting than those who do not follow an existing reporting standard (Ciliberti *et al.*, 2008). There is also evidence that the size of a company influences the extent to which the company monitors and reports its CSR performance. Past research proves that in environmental and social reporting the size of organisation is an important variable for most areas of voluntary reporting (Guthrie *et al.*, 2004, Knox *et al.* 2005). Larger companies are likely to have more resources available to support CSR measurement and reporting. The KPMG (2011) study confirms that companies with revenues of over US\$50 billion were twice as likely to report on their CSR activities as those with revenues under US\$1 billion. Another aspect that can affect the content of the reports is the geographical location of a company, especially its headquarters. The content of the CSR reports can be affected by legislation and regulations in a given country, maturity of the market, and customer demands (Goldsby and Stank, 2000, Tate *et al.*, 2010, Tewari, 2011). There is, for instance, evidence that country of origin has a significant influence on the CSR information disclosure of 127 largest corporations from emerging markets (Wanderley *et al.*, 2008). Finally, stakeholder pressure is often put forward as a reason for companies to take sustainability actions (González-Benito and González-Benito, 2006), and CSR reports are a common way for companies to present their performance to different stakeholder groups. Public listing can be used as a proxy to stakeholder pressure, as listed companies are more visible to the media and general society, thus remain under close public scrutiny. In the KPMG (2011) study, across all industries, 70% of listed companies reported on CSR.

Although various corporate sustainability performance measurement systems have been proposed (Searcy, 2012), there is no single globally agreed set of CSR-related metrics or indicators to evaluate the sustainability of operations (Keeble *et al.*, 2003). In order to support companies in measurement, verification and communicating of their CSR performance, a number of reporting guidelines and standards have been developed. Social Accountability 8000 (SA8000) Standard, ISO 26000:2010 Guidance for Social Responsibility, ISO 14001 Environmental Management, Eco-Management and Audit Scheme (EMAS) or AccountAbility 1000 (AA1000) provide guidance on how to record and report CSR-related information. One of the most accepted and relevant frameworks for accounting and reporting corporate economic, environmental and social performance was developed by the Global Reporting Initiative (GRI) (Ciliberti *et al.*, 2008). The G4 version, launched in May 2013, is the latest update of the GRI's Sustainability Reporting Guidelines and, at present, the most comprehensive sustainability reporting guidance available. Additionally, the GRI has developed supplements for several sectors to make reporting more relevant and tailored to the specific needs of diverse industries, including a pilot version of the Logistics and Transport Sector Supplement released in 2006. Logistics and Transport Sector Supplement addresses specific reporting needs of the sector, and provides guidelines for transparent disclosure of

economic, environmental and social indicators relevant to companies involved with the movement of goods using different freight transport modes. The indicators are related to fleet composition, programmes to manage impacts on environment, traffic congestion and noise, initiatives to control urban air emissions from road transport, measures to increase energy efficiency and initiatives to use renewable energy sources, recruitment, safety, and working conditions for drivers and other employees, as well as provision of logistics and transportation services for humanitarian purposes.

Research design

The findings presented in this paper are based on a content analysis of CSR reports of large, international LSPs. Content analysis allows for reliable, systematic, objective, transparent and quantitative study of the manifest content of existing publications (Weber, 1990, Krippendorff, 2004, Wong and Karia, 2010). It is a useful tool to determine key ideas and themes in published text, and to measure comparative positions and trends in reporting (Guthrie *et al.*, 2004, Spens and Kovács, 2006). Content analysis has been previously successfully applied in logistics and supply chain management research (e.g. Spens and Kovács, 2006, Carter and Easton, 2011, Hazen *et al.*, 2012), including investigations focusing specifically on LSPs (e.g. Cullinane and Toy, 2000, Maloni and Carter, 2006, Marasco, 2008, Busse, 2010, Lukassen and Wallenburg, 2010, Wong and Karia, 2010, Busse and Wallenburg, 2011). Most logistics or LSP-related content analysis studies use academic papers as units of assessment. However, analysis of public disclosure in a form of CSR reports, annual reports, financial statements or website content, is not uncommon in other fields (e.g. Gray *et al.*, 1995 on CSR disclosure, Guthrie *et al.*, 2004 on intellectual capital reporting, Jose and Lee, 2006 on environmental reporting), and this approach is adopted in this paper.

Content analysis involves two key steps discussed below: sampling and categorisation (Lukassen and Wallenburg, 2010). The section ends with a discussion of analysis carried out to investigate what factors influence the content of CSR reports in the sample.

Sampling

A database of companies was compiled based on independent rankings of top logistics providers. The following rankings were used: (1) Alphaliner: Top 100 Liner Fleets 2012; (2) Air Cargo World: Top 50 Cargo Carriers 2012; (3) Inbound Logistics: Top 100 3PLs 2012; (4) Inbound Logistics: 75 Green Supply Chain Partners 2012; (5) Logistics Manager: Top 50 Logistics Service Provides 2012; (6) Transport Intelligence - Global Contract Logistics 2012: Top 23 companies; and (7) Transport Topics: TOP 50 Logistics companies 2011 (North American Revenue).

After duplicates (i.e. companies listed in more than one rating) were removed, 350 organisations were entered into the database. The corporate websites were studied in January and February 2013. The availability of the CSR-related information was reviewed and, where obtainable, CSR or annual reports were downloaded. The CSR-related information presented on the websites tends to be descriptive and take a form of general statements and declarations (e.g. “we work with our customers to limit the transport CO₂ emissions” or “we care about local communities”). Only a very few companies include any performance indicators in the content of corporate websites. Therefore, the empirical investigation presented in this paper focused on the content of the CSR reports.

Only reports published in English were considered. There was only one instance where CSR report was available solely in a local language (Chinese). In order to ensure the search results

were comprehensive, the availability of corporate CSR reports was also verified at www.corporateregister.com. Entire CSR reports were used as the unit of analysis in our research.

Categorisation

At the next stage of the analysis, categories were developed to provide the basis for classifying textual content. The GRI G3.1 reporting framework, current at the time of writing, was adopted as a categorisation framework to structure the CSR indicators for the purpose of our analysis. The coding categories can be seen in the left column of Table 2. The GRI framework is internationally recognised and considered to be the most comprehensive CSR reporting tool currently available. Therefore, it was decided to build upon and enhance it rather than trying to propose an alternative framework. 21 out of the 45 LSPs studied, used the GRI G3 or G3.1 reporting frameworks, and four additionally filled in the Logistics and Transport Supplement. As a result, there was a risk that LSPs using this framework might seem more ambitious and mature in their reporting than companies using a different reporting format. In order to mitigate this risk, the relevant indicators were first identified and then structured into the GRI's format. This approach allowed us to get a broader perspective and identify indicators not yet included in the GRI framework.

The next issue was to decide how to define indicators. Many companies provide descriptive information about their CSR aims and actions (e.g. 'we aim to reduce our impact on the environment' or 'we participate in community projects'). In this work, only measureable outcomes were included in the analysis (e.g. 'last year, CO₂ emissions from our transport fleet were reduced by 10%' or 'we participated in three community projects').

Each report was coded twice by the same coder. A high level (98%) of coefficients of agreements (i.e. total number of agreements divided by the total number of evaluations) was achieved for each report between the first and the second round of coding. To achieve a high level of reliability cross-coding for a selected sample of reports (20% of the sample) was applied by the authors. Over 85% for the coefficients of agreements among coders achieved for each indicator, as recommended by Kassarian (1977) quoted by Spens and Kovács (2006).

Statistical analysis

Descriptive statistics and parametric (the t-test and ANOVA) or non-parametric tests (the Mann-Whitney u-test and the Kruskal-Wallis test) were used to compare average numbers of indicators between groups of LSPs with different characteristics, in order to investigate if the level of CSR reporting depends on the factors derived from the general CSR literature. The analysis was carried out in IBM SPSS Statistics 21.

The level of CSR reporting was measured by the following variables: (1) *Total number of indicators reported on*, a count variable ranging from 0 to 37 (e.g. Agility reported on 16 indicators, see Table 2); (2) *Number of environmental indicators reported*, a count variable ranging from 0 to 8 (e.g. Agility reported on 4 environmental indicators); (3) *Number of social indicators reported*, a count variable ranging from 0 to 23 (e.g. Agility reported on 11 social indicators); and (4) *The scope of reporting coverage*, i.e. number of reporting categories covered by at least one indicator (i.e. Environment, Labour Practices and Decent Work, Human Rights, Society and Product Responsibility and Other Indicators), a count variable ranging from 0 to 5 (e.g. Agility addressed 4 categories).

The effects on the number of environmental and social indicators were tested separately, to check if changes in reporting levels in these two categories can be explained by the same factors.

The literature review identified four main factors likely to influence the level of CSR reporting. Consequently, the following variables were used in the analysis: (1) *Use of an established reporting format*. The use of GRI framework is a categorical variable coded 0 (not used) and 1 (used); (2) *Public listing* (as a proxy for stakeholder pressure). Public listing is a categorical variable coded 0 and 1; (3) *Geographical location of headquarter*. This is a categorical variable. Three common locations of headquarters were coded as follows: 1: Europe (24 LSPs in the sample), 2: Asia (12 LSPs), 3: North America (9 LSPs). Locations only represented by one or two firms (e.g. Australia) were excluded from the analysis; and (4) *Size of the company*. Two common indicators used for measuring the size of companies are the turnover and the number of employees. Since turnover and number of employees in our sample are strongly correlated (Pearson's correlation coefficient $r = 0.744$, $p < 0.01$), it was decided to use turnover as a measure of the size of a company. Based on turnover, LSPs in the sample were coded into three categorical variables 1: LSPs with < 3 billion Euro turnover (15 LSPs), 2: LSPs with 3-10 billion Euro turnover (17 LSPs) and 3: LSPs with > 10 billion Euro turnover (11 LSPs). Data for the remaining two companies was not available.

The parametric tests (the t-test and ANOVA) were used where the data was normally distributed within each group (tested with the Shapiro-Wilk's test), and the assumption of homogeneity of variance (tested with the Levene's test) was met. In most cases the assumptions of normality or homogeneity of variance were violated, hence non-parametric tests (the Mann-Whitney u-test and the Kruskal-Wallis test) were applied. All tests were carried out at $p < 0.05$ significance level.

Empirical findings

Although aspects of sustainability are mentioned on corporate websites of most LSPs in the sample (53%), only 45 (13%) out of the 350 LSPs studied publish formal CSR reports, including dedicated CSR reports (34, 10%) or a CSR section in the annual reports (11, 3%). Further 27 (8%) and seven (2%) LSPs were included in the CSR reports of their corporate groups and CSR section of the corporate group annual reports, but it was impossible to extract data related to an individual company. Hence, these companies were excluded from further analysis. At the time of data collection, for 11 LSPs the latest CSR report available was published in 2012, 26 companies last reported on their CSR performance in 2011, and the final eight in 2010. The overall reporting rate of 23% is well below the results reported by KPMG (2011), which show that 95% of the 250 largest companies in the world now report on their CSR activities. However, the same study indicates that, at the industry level, the transport sector achieves one of lowest reporting rates, with only 57% of companies publishing their CSR records. The discrepancy between ours and KPMG's results is likely to be caused by a different composition of both samples (i.e. KPMG's one includes passenger and freight transport operators, whereas we focus on logistics service providers), and the size of companies included in the transport sector sample (as discussed above, KPMG's results show that even amongst the largest companies in the world, the size of a business strongly influences the probability of CSR reporting).

The CSR reports vary regarding their extent, reporting format and CSR aspects addressed. The extent of reporting varied from two pages on CSR in the annual report to a dedicated 165

pages long CSR report. On average, a dedicated CSR report is 51 pages long. All indicators in the GRI's framework were addressed by the companies studied (Table 2). The range of Key Performance Indicators (KPIs) varied from one to 37 and, on average, companies reported on 14 indicators.

Factors influencing the level of CSR reporting in the logistics sector

Statistical analysis was carried out to identify factors that may affect the number of indicators and scope of the CSR reports published by LSPs. Statistically significant differences (at $p < 0.05$ level) in the average number of indicators reported by LSPs with different characteristics are presented in Table 1.

	Use of GRI framework		Public listing		Headquarter			Turnover		
	Yes	No	Yes	No	Europe	Asia	North America	<3bn Euro	3-10 bn Euro	>10 bn Euro
Total number of indicators	21	9						8	14	22
Number of environmental indicators	8	4			5	8	6	3	6	8
Number of social indicators	11	4						4	8	12
Number of reporting categories covered	4	3	4	3				3	4	6

Table 1. Statistically significant ($p < 0.05$) differences in the average number of CSR indicators and categories present in LSPs' reports

The companies *using the GRI reporting framework* published on average more CSR indicators, and covered more reporting categories in their reports. They also published more indicators in environmental and social categories. Additional analysis indicated that LSPs using the formal reporting framework to a larger extent ($p < 0.05$) include aspects outside the GRI's framework, such as humanitarian logistics (although this is covered by the Logistics and Transport Sector Supplement), health and wellbeing support actions, and the involvement with academia. The six LSPs that addressed the three extra indicators, reported on average on 24 GRI indicators, while the 14 companies with no extra indicators reported had a mean of seven GRI indicators. This may suggest that LSPs who adopt structured reporting frameworks are more advanced in their CSR programmes, hence more likely to report on indicators beyond the prescribed list.

The use of more indicators among the LSPs applying the GRI framework can be partly explained by a more structured approach to reporting when using a pre-defined framework of indicators. For example, for certain categories a statement such as "no incidents to report" is enough to be counted as an indicator, whereas companies not using the framework are less likely to include such statements. It needs to be noted that, in order to mitigate the risk of presenting companies using the GRI framework in a more positive light, during coding we included all indicators related to a particular area (e.g. employment), even if they were presented in a different way than listed in the GRI framework.

Stakeholder pressure is a significant factor in a decision whether to publish a CSR report or not (KPMG, 2011). Our analysis shows that the average number of indicators was statistically indifferent between companies listed on stock exchange, i.e. exposed to a greater public scrutiny, and those who are not publically traded. For the factor *public listing*, the only

statistically significant differences were observed in the number of reporting categories, showing that companies listed on stock exchange are likely to cover a broader range of CSR aspects in their reports. Linking our results to findings presented by KPMG (2011), it can be argued that exposure to stakeholders' scrutiny influences the decision to report and results in a broader scope of CSR reports, but does not increase the number of indicators presented by LSPs.

Wanderley *et al.*, (2008) demonstrate the link between the country of origin and CSR information disclosure. Our analysis shows that only the differences in the number of environmental indicators between companies with *headquarters* in Asia, North America and Europe were statistically significant. These findings are in line with studies of other industry sectors (e.g. Tewari, 2011). LSPs with head offices located in Asia report on average on eight environmental indicators, whereas LSPs originating in Europe present on average only five indicators in this category.

The analysis showed significant differences regarding the *size of a company* (estimated in this research by its turnover) and (1) the number of indicators in general, (2) the number of environmental and (3) social indicators, and (4) the number of reporting categories. The larger the LSP, the more indicators / categories they are to include their CSR reports. It can be argued that the larger LSPs are more likely to report as they are better positioned to dedicate necessary resources to actively engage in sustainability programmes, CSR performance measurement and reporting. This is consistent with research carried out in other sectors (Guthrie *et al.*, 2004, Knox *et al.*, 2005).

It needs to be noted here, that the analysis presented above focuses on one influencing factor at a time. Therefore, a degree of caution is recommended when interpreting the results, as it is possible that the impact of one factor may be influenced by the effects of other variables. For instance, 82% of companies with highest turnovers in our sample apply the GRI format, while only 2% in the lowest turnover category use the framework. Therefore, it is possible that the differences in the level of reporting between GRI users and non-users may be inflated by the size effect.

Environmental Indicators

The group of KPIs relating to the environmental impacts has the most pronounced presence in the reports studied. Most common environmental indicators disclosed in CSR reports are presented in Table 3. Our analysis confirms the findings of the literature review showing that the environmental aspects of CSR are of most interest to LSPs, as they become a significant element in their business offerings and are expected to increase in importance as a criterion in supplier selection (Wolf and Seuring, 2009, Björklund and Forslund, 2013b). Vast majority of LSPs in our sample present data on GHG emissions and energy consumption (76% and 69%, respectively). 34 LSPs presented data on their Scope 1 and Scope 2¹ GHG emissions (either expressed as absolute or relative values). This suggests that GHG emissions are perceived as the most significant environmental externality related to logistics activities. All but three reports studied (93%) contain information on actions and initiatives aimed at reducing the climate change impacts of the services offered and the majority of businesses have environmental standards and certificates in place. Demonstrating a proactive attitude and green credentials has definitely become an important part of marketing strategies in the logistics industry. However, only 13% of LSPs in the sample report on Scope 3 emissions from business travel and employee transport. Other (non-GHG) exhaust emissions are reported by one-third of providers (31%). In some cases, instead of the amount of air pollutants emitted, companies provide data on the proportions of their fleets compliant with different EURO emission standards. Again, this shows that, at present, climate change is at the top of LSPs' environmental agendas.

Indicator	Units
Examples of actions to mitigate environmental impact of services offered	
Total direct (Scope 1) CO ₂ emissions	tonnes
Total indirect (Scope 2) CO ₂ emissions	tonnes
Fuel efficiency	litres / tonne-km
Electricity consumption	kWh
Waste	tonnes
Water consumption	m ³
Waste recycled by category	tonnes
Spills	m ³
Material consumption (e.g. paper, steel)	tonnes
	reams per employee
Other emissions (SO _x , NO _x , VOCs, PM)	tonnes
List of actions to protect biodiversity	

Table 3. Most common environmental indicators presented in CSR reports.

As logistics is not a material-intensive industry, the most common material consumption indicators relate to office paper usage. 56% of reports contained information on the amount of waste generated and 44% on the proportion of waste being recycled. Similarly, water

¹ Scope 1 emissions are direct GHG emissions from sources owned or controlled by the audited company. Scope 2 emissions are indirect emissions from the generation of electricity, steam or heat purchased from external suppliers. Scope 3 emissions are other indirect emissions that are a consequence of the audited company's activities, but arise from sources owned or controlled by other organisations. Most GHG reporting guidelines recommend that, at a minimum, GHG measurement should take account of Scope 1 and 2 emissions in the calculations. (Piecyk, 2012).

consumption does seem to become a material issue for LSPs, with 51% of businesses reporting on their water usage. Impacts on biodiversity are rarely present in the CSR reports (27%) and tend to be reported by LSPs using waterborne and rail transport. None of the purely road-oriented providers mentioned impacts on the local ecosystems.

Social Indicators

In terms of the quantity of indicators, social KPIs dominate the GRI framework. The group of performance indicators relating to employment practices and decent work is the most commonly reported on. Training and education, as well as, occupational health and safety were most often addressed by the LSPs (87% and 69% of reporting companies, respectively). This most likely relates to the fact that, due to the nature of the industry and equipment used, workers may be at a greater risk of serious accidents. As a result, the training initiatives very often targeted health and safety issues. Employment was another aspect commonly reported on (67%). Two companies in the sample did not present any records regarding labour practices and decent work. This does not indicate that this information is not available, only that it is not contained in the CSR reports. Most common indicators in each social sub-category are shown in Table 4.

Indicator	Units
<i>1.Labour Practices and Decent Work</i>	
Education and training	hours of training hours per employee percentage of employees trained
List of actions to improve health & safety	
Accidents	number of accidents
Fatalities	number of fatal accidents
Breakdown of employees by gender	number of employees percentage of employees
Breakdown of employees by region	number of employees percentage of employees
Breakdown of employees by age bracket	number of employees percentage of employees
<i>2.Human Rights Performance Indicators</i>	
List of actions to ensure human rights are respected	
Training on policies and procedures concerning human rights relevant to operations	hours of training hours per employee percentage of employees trained
<i>3. Society Performance Indicators</i>	
List of community projects supported	
Number of community projects supported	number of projects
Sponsorships and donations to community projects	monetary value
List of actions to ensure compliance with anti-corruption and anti-trust standards	
<i>4.Product Responsibility Performance Indicators</i>	
Results of customer satisfaction surveys	custom index

Table 4. Most common indicators presented in each social sub-category.

Human rights performance is a CSR aspect not adequately addressed in many of the reports studied. 40% of the LSPs studied did not present any indicators for tracking their performance within this area. The aspect most commonly reported on are the investment and procurement practices, addressed by 49% of the CSR reports. Based on our analysis, we conclude that most of the companies do not report on human rights, when they do not perceive this as an issue for their operation.

KPIs reflecting the contribution to society are present in most of the reports. However, the focus is very limited to indicators tracking community involvement (addressed in 78% of the reports) and anti-corruption measures (49% of the reports). Only six reports included indicators tracing the performance relating to anti-competitive behaviour and three reported on the value of fines for non-compliance with laws and regulations.

Customers do not usually have a direct contact or presence when a logistics service is carried out. Hence, the area of product responsibility does not seem that relevant for the logistics industry. Despite this, the reports do include indicators tracking the performance within all areas. Product and service labelling is the product responsibility indicator most often reported on (36% of the reports).

Other Indicators

This research has also identified three areas not yet covered by the GRI's reporting framework, namely humanitarian logistics, academic involvement, and employees' health support actions. More than a half (59%) of the reports studied indicated a LSP's involvement in humanitarian logistics and emergency response operations. This is still below the 71% reported by Johnson et al (2011) for a sample of 84 Fortune 100 companies. This is somewhat surprising as, due to the nature of their core activities, LSPs are particularly well positioned to offer physical support to relief agencies. For this reason, the GRI's Logistics and Transport supplement now includes a relevant indicator (LT15): 'provision of logistics and transportation core competences to deliver humanitarian needs locally and globally measured in terms of: e.g. tonnes carrying capacity, person months, expenditure, value, and in kind contributions in disaster preparedness and response'. Example performance indicators presented in the reports include number of emergency response operations supported, donations of staff time, assets and transport services and contributions of knowledge, skills and resources to humanitarian relief organisations.

The analysis identified LSPs' involvement with academia as an important indicator of their social responsibility. This typically involved a contribution to academic research and/or funding of academic positions or institutions. Nine companies (20%) in the sample indicated to have links with higher education institutions. Examples include collaboration with universities and participation with research projects (monetary values and contributions in kind). LSPs' involvement with academia helps to advance research and ensure their practical applicability. It also provides the participating companies with a better access to highly skilled graduates and latest developments in the field.

The final group of indicators not yet present in the GRI's framework refers to employees' health support actions. This category includes initiatives aimed at both mental health and physical wellbeing. Examples include actions to promote well-being, number of health trainers supporting employees, system of in-house health consultations, mental health training, stress management programmes or well-being workshops. 49% of LSPs in the sample reported on this indicator.

Concluding remarks

The importance of CSR is rising on political and business agendas. This paper provides an insight into how transparently LSPs report on the sustainability of their performance. Our analysis suggests that CSR is becoming an increasingly important issue for logistics companies, with over a half of LSPs presenting CSR-related actions on their corporate websites. However, only 13% of world's largest LSPs produce a formal CSR report and publish at least some CSR-related indicators.

The use of a formal framework and the size of a company are the two key factors determining the level of CSR reporting in the sample, measured as the number of indicators and the number of CSR categories covered. Further statistical analysis revealed that LSPs applying the GRI format in CSR reporting also publish more indicators not yet included in the framework, i.e. tend to be more mature in their CSR practice and communication. The companies originating in Asia reported, on average, more environmental indicators than LSPs with headquarters located in Europe and North America. Finally, listing on a stock exchange influenced only the breadth of the CSR reporting coverage, i.e. companies more exposed to public scrutiny reported on a wider range of CSR-related indicators but did not present more indicators as a result of that. There are two main limitations to the findings presented in this paper. The impact of each of the factors influencing the level of CSR reporting was analysed in isolation. It is possible that where correlations between influencing variables exist, the impact of one factor may be inflated by the effects of other variables. It is also important to acknowledge that there may be other factors influencing the level of CSR reporting, for example how long has a LSP had a CSR programme in place, a range of services offered, or the level of CSR awareness amongst the executive board members. Data reflecting these considerations is not captured in the CSR reports, hence it was not possible to prove their significance in our study. These issues should be addressed by future research involving primary data collection.

While most companies studied report on categories such as environment, employment, diversity, working conditions, ethics and human rights, there is no consistency in the choice of indicators. Even within one category, performance is reported in a number of ways. For instance, under health and safety companies report on the absolute number of accidents, hours lost due to sick absence, number of accidents per 1000 employees, etc. This suggests that a standardised set of indicators would be useful to ensure the comparability of results. GRI reporting framework provides a tool that could be used by LSPs to ensure industry-wide consistency of reporting. Despite this, only 21 of the 45 providers in the sample apply the framework. Even though most of the companies studied do not apply the GRI format, this investigation has shown that it is possible to structure and analyse their performance using this framework. There is a need for further research investigating different KPI structures applied, the pros and cons of different reporting structures, as well as providing guidance regarding how to best structure the KPIs reported. Since the GRI framework is well known and covers almost all indicators of relevance for the industry, this ought to be an important point of departure. An in-depth analysis of other ways to structure KPIs can provide a valuable input into the future development and use of the GRI framework.

On a related matter, even where the same indicator is reported by LSPs, there may be a variety of approaches applied to data collection and analysis. The reports provide hardly any

insight into how the data presented in them was gathered and aggregated. This may impact on the accuracy of the comparisons and needs to be noted as a limiting factor in our analysis.

This study supports the findings of the literature review by confirming that the meaning of CSR in the logistics discipline has yet to reach uniformity. The CSR areas typically covered by the reports studied regard typically environmental impacts, labour practices and decent work, as well as some indicators regarding social performance (community and anti-corruption initiatives). One can, however, question if this is because these areas are of greater importance to LSPs. The range of indicators reported could be also dictated by the accessibility of required data. Our study provides examples of measurements that can be used in order to track progress within areas not commonly covered and can thereby provide guidance to other LSPs on how these aspects can be measured successfully. As described by Terwani (2011) companies are often unsure about the extent, manner and focus of CSR communication. This paper provides an important contribution to companies, as it offers guidance, inspiration and motivates action.

Three areas not yet covered by the GRI's reporting framework were identified: humanitarian logistics, academic involvement, and employees' health support actions. The academic involvement indicators promote industry participation in academic research. This enhances the body of logistics knowledge and contributes to the long-term sustainability of the logistics industry. We strongly encourage LSPs to track their academic involvement and to include relevant KPIs in their CSR reports.

Literature points at the importance of considering social constructions of the companies studied, as this can influence both CSR reports and CSR communication. It is also vital to understand how CSR is socially constructed and to take this into consideration while developing a business strategy (Dahlsrud 2006). This study is scoped out with regard to company size and sector. However, the sample is not geographically limited. The content of the CSR reports can be affected by the country, thus impacted by the nature and kind of governance defined rule-based versus relation-based governance (Tate *et al.*, 2010, Tewari, 2011). Our findings indicate that the reporting practice is not affected by the location, i.e. the continent, of a LSP's headquarters. There is, however, a need for further research in order to investigate if reporting practices might differ amongst LSPs operating in different countries. There is also a need for research narrowing the scope with regard to sector studied, as LSPs' primary area of operation can vary largely (e.g. air cargo, road haulage, warehousing) and thereby influence which indicators to focus on.

The key question that emerges from this study is why the percentage of companies reporting on their CSR-related performance is so low. Is this because LSPs do not recognise the importance of the CSR issues or maybe due to a lack of tools and resources to manage the monitoring and reporting process? Limited CSR expertise and a low level of advanced information technology application may be reasons for low reporting rates. Since the empirical data presented in this paper is obtained indirectly (i.e. from publically available resources), it may not fully reflect all the CSR actions undertaken by the companies studied. Some of the CSR-related KPIs may be available internally but not disclosed to the public. Furthermore, actions to mitigate the environmental and social impacts of operations may be taken by companies not producing CSR reports. Hence, there is a need to establish what KPIs are being used in the internal performance tracking and what determines a set of KPIs disclosed by the LSPs in their CSR reports. These issues should be addressed by future research. Also, this paper focused on large, international LSPs. It would be interesting to conduct a study investigating CSR activities and reporting of small and medium logistics

companies. This would require a case study or a questionnaire-based research approach as these providers are probably less likely to publish CSR-related information on their websites, hence secondary data availability is limited.

The analysis presented in this paper is based on the latest CSR report available. This approach suits the purpose of this study, i.e. the analysis of the current reporting practice in the third party logistics sector. It is acknowledged that the latest report may not be the most comprehensive one. A longitudinal study aiming to explore how CSR reporting in the sector reporting progressed over the years would be complementary to our work.

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