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# Sustainability Attitude of Automotive Suppliers

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**Abstract:** The issue of sustainability, or corporate social responsibility (CSR), has become a widely discussed topic in all industrial production sectors. The article focuses on the automobile industrial sector because it is not only the most dynamically developing industrial area but also because it is one of the driving forces of local economies in many European countries. This paper aims to reveal possible differences and diversity of understanding of priorities in the CSR activities provided by automotive suppliers in European countries. Based on the meta-analysis, 73 actions were listed, and a questionnaire survey was performed. Cluster analysis and Fisher's exact test were applied to find out whether the attitude towards sustainability differs dependent on the position in the supply chain or on the company size.

**Keywords:** triple bottom line, questionnaire survey, cluster analysis, Fisher's exact test

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## 1. Introduction

For the European public, sustainability is currently a crucial topic. The worsening and increasingly burdensome climate crisis and the current crisis related to the effects of the coronavirus pandemic and war aggression in Ukraine contribute significantly to this. All these currently existing phenomena generate an ever-increasing need to minimise the use of all necessary resources (whether material or energy) and limit waste generation as much as possible.

Sustainability means being a trustworthy and reliable partner for customers and employees. It deals with the future, building economic stability, and supporting and developing new technologies that will make it possible to use natural resources only if they can regenerate themselves. The research presented in this paper is based on the article by (Velinov et al. 2021), where an overview of activities supporting sustainability was drawn up.

The purpose of this paper is to understand the preferences and interests of automotive companies in sustainability. Therefore, the companies' current state of handling this issue is explored. Our research aimed to find out which activities supporting three areas of sustainability are carried out most frequently and whether the companies' attitude towards sustainability (i.e. reported activities) depends on the position of a company in the supply chain, possibly on the company size.

The automotive industry sector was chosen as the centre of interest for the research area, focusing on the differences in the perception of sustainability by individual cells within the automotive supply chain. The automotive industry was chosen for the overall importance of this industrial area for Europe. The automotive industry is one of the most important economic drivers for many European countries. Automotive is also the most frequent pioneer in introducing innovative solutions.

Indeed, the efforts and tendency to be greener than green, to be responsible to society, and to support economic growth in regions influence everyday decisions as much as strategic directions.

## 2. Literature Review

Sustainability is a long-discussed topic in the automotive industry and transport system (Ejdys 2021, Chamier-Gliszczyński 2011). Sustainability means meeting the needs of the present generation without compromising the ability to meet the needs of future generations (Commission of the European Communities 2005, Nawrocki et al. 2018, Woźniak et al. 2017).

The UN started negotiations on sustainable development goals in 2012 at the conference in Rio de Janeiro. Three years later, all member states, civil society representatives, the business sector, academic communities, and citizens

from all continents have formulated sustainable development goals, representing the development program for 2015-2030. These goals are not only focused on environmental aspects, with which sustainability is most often associated. Here it is possible to identify goals linked to social and economic issues.

Sustainability is also based on three fundamental pillars – social, environmental, and economical. John Elkington first described this concept in his 1998 publication Cannibals with Forks: The Triple Bottom Line of the 21st Century Business. He defined the so-called Triple Bottom Line (TBL), where he divides sustainable activities into three areas – people, planet, and profit. Practically TBL is focused on social, environmental, and economic areas. Businesses support social development through philanthropy and sustainable human resource management. Environmental protection, fulfilling the environmental area of TBL, aims at reducing emissions during production (Lenort et al. 2019), developing green products, waste management (Chamier-Gliszczynski & Krzyzynski 2005, Chamier-Gliszczyński 2010), transport planning (Kłos et al. 2020) or environmental education. The economic aspect is fulfilled by transparent relations with suppliers, the support of regional suppliers, or the offer of new jobs (Chaudhary 2016).

The last systematic literature review from databases related to sustainability in the automotive industry published in periodicals from 2001 to 2012 was realised in May 2015 (Drohomeretski et al. 2015). This article identifies the main practices and performance measures and categorises sustainability studies in the automotive sector.

The study to examine the critical success factors of sustainable manufacturing practices in the Malaysian automotive industry was presented by the research made by Habidin et al. The results of the reliability analysis show that social responsibility is a critical factor influencing the immediate success of sustainable manufacturing practices implementation (Habidin 2017).

There are also some barriers to sustainability that should be taken into account. Gedam et al. analysed and prioritised the sustainability barriers in the context of human and organisational dimensions in the Indian power sector. The most significant barriers were identified. It is necessary to combine efforts from the organisation and government towards sustainability (Gedam 2021). It could also be a recommendation for the automotive industry.

The supply chain plays a crucial role in the automotive industry (Jacyna-Gołda et al. 2018, Staniuk et al. 2022). Good cooperation (based on a win-win strategy) between car manufacturers and suppliers is essential for future success. The diffusion of corporate sustainability in global supply networks in the automotive industry was the topic of interest of the study by the authors of US universities (de Góes 2021).

The impact of monitoring and mentoring strategies on sustainability diffusion within supply networks through focal companies and how suppliers engage in implementing these strategies was the subject of the study by authors (Meqdadi 2020), who concluded that the monitoring strategy impacts sustainability diffusion at the dyadic level, while the mentoring strategy is a prerequisite for the diffusion of sustainability at the supply network level. The significance of green supply chain management to the study of the impact of lean practices, namely, Kaizen and innovation management practices, on organisational sustainability was uncovered by the research published in September 2020. The authors concluded that the innovation management strategies and Kaizen individually positively influence the environment supply chain (Singh 2020).

The current phenomena include the online publication of sustainability information. The study was conducted to better understand the phenomenon of online sustainability disclosure by considering the amount and nature of the content of sustainability-related information posted on companies' corporate websites, providing evidence of sustainability disclosures on the websites of various large companies manufacturing moulds in Portugal (Correia 2021).

The problems in managing the flow of sustainability information along several nodes in the supply chain are addressed by a study by German authors from the Friedrich-Alexander University Erlangen-Nuremberg (Akhavan 2021).

Reports and reporting are essential and indispensable parts of sustainability activities. Global Reporting Initiative (GRI) standards enable organisations to measure and understand their most critical environmental, social, and economic impacts. Companies have been using this sustainability reporting method since 2016 when these standards were launched.

The study published by Usmani et al. analyses how and by whom standalone sustainability reports are prepared, the rationale for using visuals and blank space, and examines the respective roles of reporting managers and Chief Executive Officers (Usmani 2020). Diversity management practices in sustainability reporting, exemplified in the case of Turkey, a developing economy with a complex and multi-ethnic society, have also been the subject of very interesting research (Caliskan 2019).

Other interesting studies include research on key company characteristics that influence sustainability reporting publicly listed companies in Sri Lanka (Dissanayake 2019). The research focused on the quality of CSR reporting was published in 2020 and addresses whether CSR reporting should be mandatory or voluntary (Mies 2020).

The sustainability issues through the implementation of sustainability reporting in German manufacturing small and medium-sized enterprises was the subject of a study by German authors (Steinhöfel 2019).

## 3. Research Methodology

### 3.1. Questionnaire

The data was obtained using a questionnaire survey. The structured questionnaire contained questions regarding activities that support three areas of TBL: environment, economy, and society. In order to create their list, a qualitative meta-analysis was undertaken. In addition to best practices recommended in professional publications (Brockett 2012), (Costs and Benefits of Green Logistics: 4flow Supply Chain Management Study, 2013), (Epstein 2018), and (Henke 2021), public sources in the form of company reports according to GRI standards (Global Reporting Initiative 2021) were used.

It resulted in 73 questions (36 regarding the environment, 15 regarding the economy, and 22 regarding society). The questions were answered yes or no, depending on whether the company supports the activity. The questions from these three areas are listed in Tables 1 to 3.

### 3.2. Classification of Companies

The research focused on companies representing the final links of the supply chain.

- Tier 1 supplier presents the final stage before the product reaches the manufacturer, who may finish the product, complete it, or get it ready for distribution by organising its shipment to get the product to the end customers. Usually, tier 1 companies offer the most advanced processes in the supply chain. The automotive industry can manufacture subassemblies for final assemblies, such as lights, seats, dashboards, etc.
- Tier 2 suppliers supply components and parts for tier 1 suppliers. In the automotive industry, it can be a manufacturer of components intended to produce sub-assemblies, such as cable harnesses, engineering parts, etc.
- Tier 3 supplier is one step further distant from a final product and typically works in the area of raw materials. In the automotive industry, it can be a manufacturer of parts intended for the assembly of components, such as the production of wires for cable harnesses or the production of steel profiles to produce steel parts for chassis.

The classification by company size is somewhat questionable since there are differences between the Czech, Europe, and USA standards.

According to the Association of Industry of the Czech Republic, a medium-sized company is an enterprise with less than 500 employees and a turnover of less than 4 million EUR; other companies are considered large (https://www.ekonomicky.eu). Small-sized companies with less than 50 employees do not exist in the automotive industry.

According to the EU standard, a large company employs more than 250 employees, has either an annual turnover of more than EUR 50 million or has an annual balance sheet of more than EUR 43 million (https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Glossary:Enterprise_size).

In the United States, the average annual sales and the average number of employees are considered for the classification of manufacturing companies. In general, large businesses are those in most mining and manufacturing industries that employ 500 or more employees and those that generate over $7 million in annual sales. However, there are exceptions to these standards in some sectors (https://smallbusiness.chron.com/determines-small-business-vs-large-business-20302.html).

In our paper, two categories of companies are distinguished:

- large companies with more than 500 employees and annual sales of over EUR 10 million,
- medium companies with less than 500 employees and annual sales of less than EUR 10 million.

Nearly 80 European manufacturing companies operating in the automotive supply chain were approached, while they were promised anonymity. Manufacturing companies were selected in such a way that the representation of categories by the position in the supply chain or by the company size was approximately even. Information on the size and position of these firms in the supply chain was obtained from public internet sources and the annual reports.

### 3.3. Statistical Methods

#### *Cluster Analysis*

In order to analyse the attitude of companies towards sustainability, a cluster analysis was used in which companies were clustered according to responses to 73 questions. Since the number of questions was high, three areas of sustainability were considered separately (36, 15, and 22 questions). The variables representing responses from 21 companies contained values 0 or 1 (0 = no, 1 = yes).

Several methods of agglomerative hierarchical clustering were gradually applied. These methods begin by placing each $p$-dimensional observation representing $p$ responses obtained from a company (e.g. $p = 36$) into a separate cluster. Clusters are then joined, two at a time, until a specified number of clusters is formed (1 in our case). At each stage, two clusters whose distance is minimal are linked. Three of these methods with different ways of linking clusters were chosen: the nearest neighbour method, the furthest neighbour method, and the Ward's method (Everitt et al., 2011). As a measure of the distance between two $p$-dimensional observations, the city block (or Manhattan) distance was chosen which is given by

$$d(x,y)=\sum_{i=1}^{p}|x_i-y_i| \tag{1}$$

The clustering process was represented by a dendrogram.

### *2 × 2 Contingency Table and Fisher's Exact test*

Since the multivariate analysis did not yield findings about the different attitudes towards sustainability in the categories of suppliers specified above (tier 1 versus tier 2 or large versus medium), the responses to individual answers from the questionnaire were analysed. Due to the binary character of both the response variables and the position in the supply chain or the company size, a 2 × 2 table was used for each activity from the questionnaire, both for the company position and the company size (Table 1).

**Table 1.** Two-way distribution of companies

| | Yes | No | Total |
|---|---|---|---|
| Group 1 | $n_{11}$ | $n_{12}$ | $n_{1+}$ |
| Group 2 | $n_{21}$ | $n_{22}$ | $n_{2+}$ |
| Total | $n_{+1}$ | $n_{+2}$ | $n$ |

Source: compiled by the authors

**Table 2.** Conditional probabilities for two groups

| | Yes | No |
|---|---|---|
| Group 1 | $\pi_1$ | $1-\pi_1$ |
| Group 2 | $\pi_2$ | $1-\pi_2$ |

Source: compiled by the authors

The problem under investigation can be formulated as examining the dependence of a binary response on another binary variable, comparing the relative frequencies of "yes" in two groups or comparing the odds $\pi_1/(1-\pi_1)$ of "yes" in group 1 and the odds $\pi_2/(1-\pi_2)$ of yes in group 2 (Table 2).

The null hypothesis that the groups do not differ is expressed as $H_0$: $\psi=1$, where the odds ratio has the form

$$\psi=\frac{\pi_1/(1-\pi_1)}{\pi_2/(1-\pi_2)} \tag{2}$$

The one-sided alternative is $H_1$: $\psi>1$.

Due to the small sample size, the Fisher's exact test is applied (Agresti 2019). Using the notation in Table 1, the sample odds ratio is

$$\hat{\psi} = \frac{\hat{\pi}_1 / (1-\hat{\pi}_1)}{\hat{\pi}_2 / (1-\hat{\pi}_2)} = \frac{n_{11} / n_{12}}{n_{21} / n_{22}} = \frac{n_{11} n_{22}}{n_{12} n_{21}} \tag{3}$$

The test is based on the assumption that both row and marginal column totals are fixed. Since the cell count $n_{11}$ determines the other three cell counts, the hypergeometric formula expresses probabilities for the four cell counts in terms of $n_{11}$ alone. When $H_0$ is true, the probability of a particular value $n_{11}$ equals

$$P(n_{11}) = \frac{\binom{n_{1+}}{n_{11}}\binom{n_{2+}}{n_{+1}-n_{11}}}{\binom{n}{n_{+1}}} = \frac{n_{1+}!n_{2+}!n_{+1}!n_{+2}!}{n!n_{11}!n_{12}!n_{21}!n_{22}!} \tag{4}$$

Considering the alternative hypothesis $H_1$: $\psi > 1$, larger values of $\hat{\psi}$ providing stronger evidence in favour of this hypothesis and the *P*-value equals the sum of the probabilities (4) for $n_{11}$ being at least as large as the observed value wherein the value of $n_{11}$ is limited by the lower of the values $n_{1+}$ and $n_{+1}$.

## 4. Results and Discussion

### 4.1. Summary of Reported Activities

Only 21 questionnaires were returned from all the companies approached. Fig. 1 to 3 show the percentage of companies that support individual activities listed in Tables 3 to 5.

It follows that 100% of companies in the sample reported environmental management (E 32), compliance with standards and environmental measures (E 34), cost reduction (EC 2), innovation in automotive (EC 6), legitimate tax paying (EC 12), fair relationships with suppliers (EC14) and special programmes (SO 2). On the contrary, less than 50% of companies reported battery recycling (EN 5), usage of grey water (EN 18), noise reduction (EN 23), cooperation in the development of batteries (EN 27), transition from road to railway and sea (EN 29), and energy ISO 50001 (EN 36).

**Table 3.** Activities supporting the environment

| | | | |
|---|---|---|---|
| EN1 | Waste reduction | EN19 | Transformation, improvement of production in ecological terms |
| EN2 | Parts recycling, reusing | EN20 | VOC emissions reduction |
| EN3 | Back distribution | EN21 | Sewage water treatment |
| EN4 | Product recycling | EN22 | Usage of sustainable materials |
| EN5 | Battery recycling | EN23 | Noise reduction |
| EN6 | Sustainable waste management | EN24 | Direction to the climate neutrality |
| EN7 | Circular economy | EN25 | Sustainable relationships with suppliers |
| EN8 | Sustainable product development | EN26 | Tier 1 certified suppliers |
| EN9 | Monitoring of product impact on the environment | EN27 | Cooperation in the development of batteries |
| EN10 | LCA (life cycle assessment) | EN28 | The utilisation of transport capacities |
| EN11 | Eco-friendly parts | EN29 | The transition from road to railway and sea |
| EN12 | Ecological solution of traditional products | EN30 | Packaging management |
| EN13 | Communication of sustainable products to public | EN31 | Environmental education of suppliers |
| EN14 | Water usage reduction | EN32 | Environmental management |
| EN15 | Energy efficiency | EN33 | ISO 14001 certification |
| EN16 | Usage of renewable energy sources | EN34 | Compliance with standards and environmental measures |
| EN17 | $CO_2$ emissions reduction | EN35 | Biodiversity |
| EN18 | Usage of grey water | EN36 | Energy ISO 50001 |

Source: Authors study based on own research

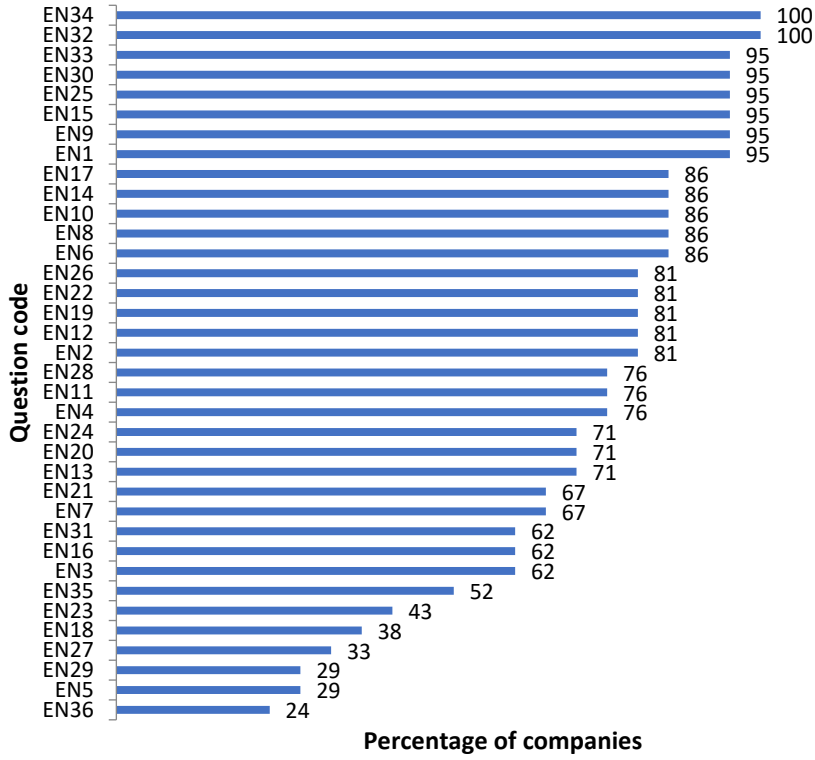


**Fig. 1.** Percentage of companies performing activities supporting the environment (Source: Authors study based on own research)

**Table 4.** Activities supporting economy

| | | | |
|---|---|---|---|
| EC1 | Cooperation (development, recycling of batteries) | EC9 | Elimination of unequal opportunities |
| EC2 | Cost reduction = consumption reducing | EC10 | Support of sustainable cities |
| EC3 | Economic development of a region | EC11 | Protection of resources |
| EC4 | Regional suppliers' support | EC12 | Legitimate tax paying |
| EC5 | Anticorruption | EC13 | Country-by-country tax report |
| EC6 | Innovation in automotive | EC14 | Fair relationships with suppliers |
| EC7 | Employment in a region | EC15 | Shared economy |
| EC8 | Engagement of disadvantaged groups | | |

Source: Authors study based on own research

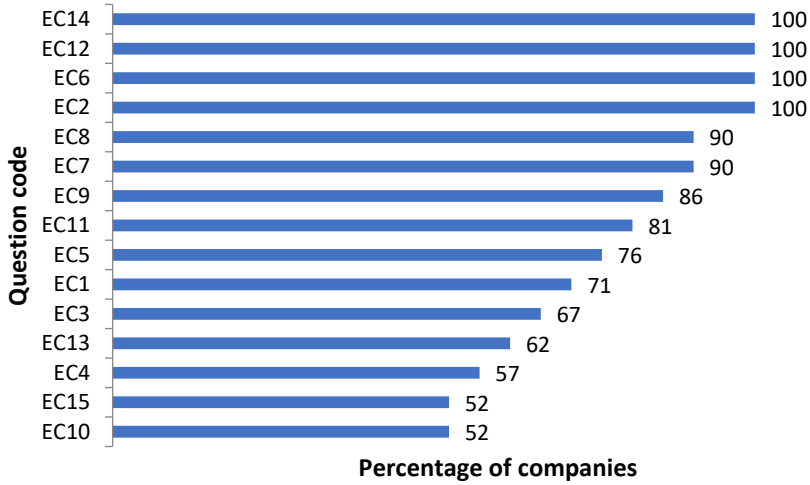


**Fig. 2.** Percentage of companies performing activities supporting the economy (Authors study based on own research)

**Table 5.** Activities supporting society

| | | | |
|---|---|---|---|
| SO 1 | Equal opportunities | SO 12 | Benefits |
| SO 2 | Special programmes (education, retraining) | SO 13 | Care of health and safety |
| SO 3 | Diversity | SO 14 | Philanthropy |
| SO 4 | Inclusion | SO 15 | Community support |
| SO 5 | Work-life-balance | SO 16 | Traffic safety |
| SO 6 | Gender equality | SO 17 | COVID-19 – help |
| SO 7 | Respect for human rights | SO 18 | Customers' health and safety |
| SO 8 | Health prevention | SO 19 | Respect for human rights |
| SO 9 | No enslaved person, and child labour | SO 20 | Cooperation with educational institutions |
| SO 10 | No discrimination | SO 21 | Education in a region |
| SO 11 | Monitoring of employees satisfaction | SO 22 | IT security |

Source: Authors study based on own research

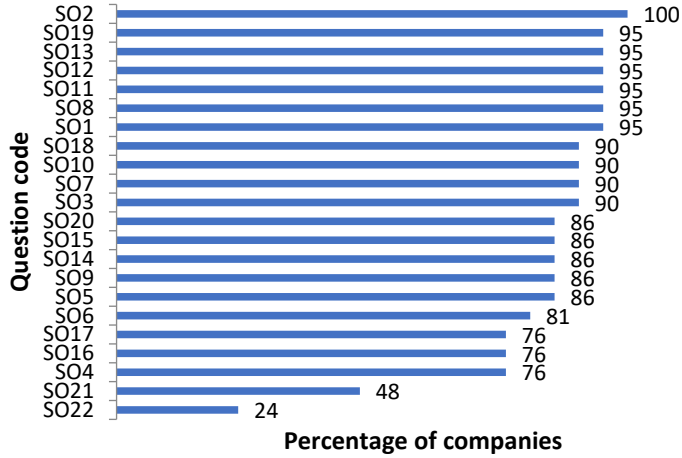


**Fig. 3.** Percentage of companies performing activities supporting society (Source: Authors study based on own research)

### 4.2. Cluster Analysis Results

The Ward's method resulted in the clearest clustering (Fig. 4, 6, and 7), but the clusters formed could not be characterised either by the position in the supply chain or by the company size, as follows from the labelling x-axis in the dendrograms. Comparing Fig. 4 and 5, which refers to the activities supporting the environment, it can be seen that the four resulting clusters are related to the number of reported activities. A similar conclusion can be made about the activities supporting the economy. As for society, the connection was not so unambiguous.

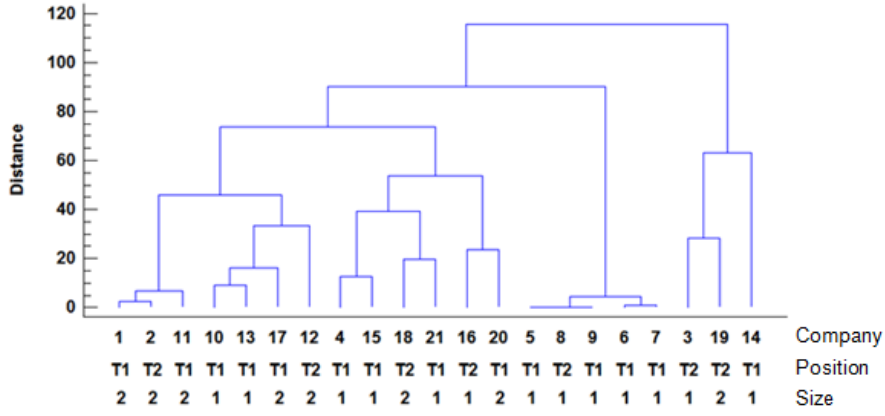


**Fig. 4.** Dendrogram for the area of the environment (Statgraphics, Source: Authors study based on own research)

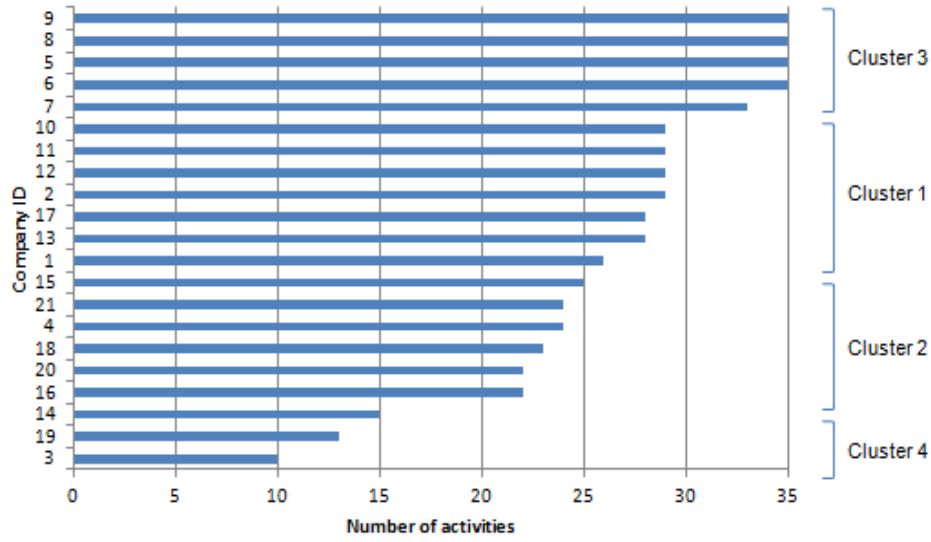


**Fig. 5.** Number of reported activities for individual companies – the environment (Source: Authors study based on own research)

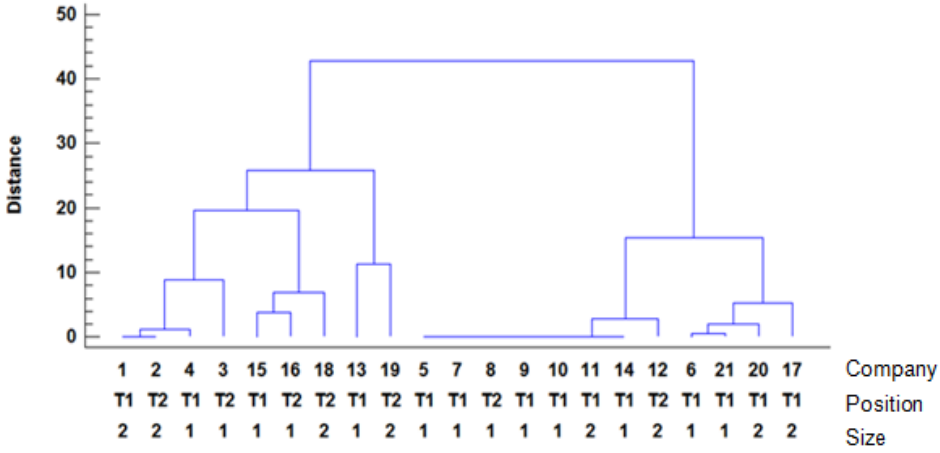


**Fig. 6.** Dendrogram for the area of the economy (Statgraphics, Source: Authors study based on own research)

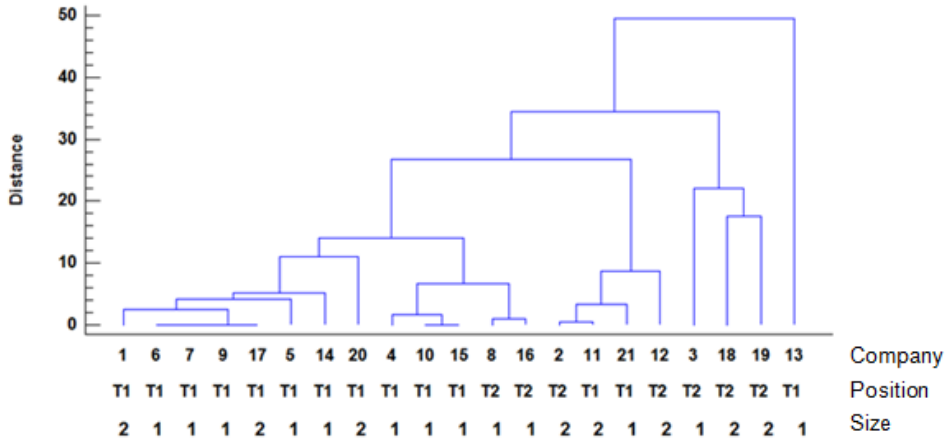


**Fig. 7.** Dendrogram for the area of society (Statgraphics, Source: Authors study based on own research)

Since the aim was to find regularities in the attitude towards sustainability in general, it is not helpful to interpret the results concerning individual companies in the sample.

### 4.3. Fisher's Exact Test

The questions with significant differences between the two groups of companies are shown in Tables 6 and 7. In addition to the usual significance levels $\alpha = 0.05$, the level of 0.1 was also considered (question codes with P-value less than 0.05 are marked $^{**}$, and question codes with P-value between 0.05 and 0.1 are marked $^{*}$).

**Table 6**. Percentages of "yes" according to the position in the supply chain

| | Activities supporting the environment | | | | | Activities supporting the economy | | Activities supporting society | |
|---|---|---|---|---|---|---|---|---|---|
| Position | EN8$^{*}$ | EN13$^{*}$ | EN17$^{**}$ | EN19$^{*}$ | EN20$^{*}$ | EC7$^{*}$ | EC10$^{**}$ | SO16$^{**}$ | SO21$^{**}$ |
| Tier 1 | 92.2 | 85.7 | 100.0 | 92.9 | 85.7 | 100.0 | 71.4 | 92.9 | 64.3 |
| Tier 2 | 71.4 | 42.9 | 57.1 | 67.1 | 42.9 | 71.4 | 14.3 | 42.9 | 14.3 |

Source: Authors study based on own research

According to Table 6, referring to the comparison of tier 1 and tier 2 suppliers, significant differences appeared in the reported $CO_2$ emissions reduction (EN 17, P-value = 0.0263), support of sustainable cities (EC 10, P-value =

0.0209), traffic safety (SO 16, P-value = 0.0251), and education in a region (SO 21, P-value = 0.0426). For example, 100% of tier 1 suppliers and only 57.1% of tier 2 suppliers in our sample reported that they support activity EN 17, etc. The differences were less significant for other activities displayed in Table 6 (P-values between 0.05 and 0.1).

**Table 7.** Percentages of "yes" according to the company size

| | Activities supporting the environment | Activities supporting the economy | | Activities supporting society | |
|---|---|---|---|---|---|
| Company size | EN 18* | EC 10* | EC 13* | SO 4** | SO 22** |
| Large | 53.8 | 69.2 | 76.9 | 92.3 | 7.7 |
| Medium | 12.5 | 25.0 | 37.5 | 50.0 | 50.0 |

Source: Authors study based on own research

In Table 7, the significant differences between large and medium-sized companies appear primarily in reported inclusion (SO 4, P-value = 0.0475) and IT security (SO 22, P-value = 0.0475). The percentages for SO 22 are inversely related than to other activities; the rate of those supporting SO 22 is less between large companies than between medium-sized companies. For other displayed activities, the differences are less significant.

### 4.4. Discussion

The fact that only 21 out of 80 addressed companies responded may be due to the difficult period in which the survey was conducted. The companies were dealing with problems related to the coronavirus crisis (for example, a lack of workers and material resources due to interrupted supply chains), and responding to the questionnaire was not among their priorities. Moreover, the fact that only tier 1 and tier 2 and no tier 3 suppliers responded may indicate that the companies whose position in the supply chain is further from the final producers are less conscientious in their attitude towards sustainability.

The resulting sample was too small to get precise results using multivariate analysis. For example, in part, regarding the environment, the number of variables (reported activities) was even greater than the sample size. Therefore, the small sample size will likely affect the number of significant differences between companies' categories. It can be assumed that the larger the sample size, the more differences in percentages of reported activities between the two categories of companies would be significant. Moreover, the effectiveness of statistical tests is reduced due to the uneven representation of categories in terms of position and size (Table 8). As follows from Table 8, within tier 1 suppliers, large companies prevail.

**Table 8.** Distribution of companies' categories

| Position/Size | Large | Medium size | Total |
|---|---|---|---|
| Tier 1 | 10 | 4 | 14 |
| Tier 2 | 3 | 4 | 7 |
| Total | 13 | 8 | 21 |

Source: Authors study based on own research

The analysis results might also be influenced by the fact that many companies figure in supply chains with different positions vis-à-vis the final manufacturer. For example, these are cable harness manufacturers who can supply their products straight to the final assembly, where they are listed as tier 1. Still, they can also supply their products to reflector manufacturers, where they are listed as tier 2. When selecting respondents, the position of producers was determined according to the majority production, but it may have changed during the survey period.

Examining the differences between the two categories of companies, especially between tier 1 and tier 2 suppliers, was of interest. Still, sometimes the significant difference between large and medium-sized companies was revealed. For almost all activities, the percentage of companies supporting the activity was higher within tier 1 suppliers or large companies. The only exception appeared in the last group of activities. See further.

The most or least frequently reported activities supporting the environment are visible in Figure 1. For example, EN 32 and EN 34 were mentioned by 100% of companies. On the contrary, EN36 was reported only by 24% of companies. The significant difference between tier 1 and tier 2 suppliers at the level of 0.05 appeared only for EN 17, which was reported by 100% of tier 1 suppliers and 57.1% of tier 2 suppliers. Other less significant differences are shown in Tables 6 and 7.

Within the economy-related activities, the significant difference was shown especially for EC 10, both between tier 1 and tier 2 suppliers and between large and medium-sized companies. Some differences bordering on the significance level of 0.1 were found for EC 7 and EC 13.

Within the society-related activities, SO 4, SO 16, SO 17, SO21 and SO 22 were least frequently supported, of which SO 21 by 48% of companies, SO 22 even only by 24% of companies. Significant differences between tier 1 and tier 2 suppliers were found for SO 16 and SO 17. Percentages for SO 4 were similar, but a significant difference was observed between large and medium-sized companies. The most striking result was for SO 22 (IT security), where tier 1 suppliers and large companies reported this activity less frequently than the other category. The question might be misunderstood. Companies are forced by their customers, car manufacturers, to meet the IT security requirements sys-

tematically (this is presented by the ISO 27001/TISAX standard), this has become an established standard, and the companies might not consider it an extra activity related to sustainability.

## 5. Conclusions

Our research aimed to find out which activities supporting three areas of sustainability are carried out most frequently and whether the companies' attitude towards sustainability (i.e. reported activities) depends on the position of a company in the supply chain, possibly on the company size.

Significant differences between tier 1 and tier 2 suppliers or between large and medium-sized companies appeared only in some activities supporting sustainability. Except for the item of IT security, the percentage of companies supporting the relevant activity was higher between tier 1 suppliers or large companies.

The results of our research cannot be generalised due to the small size of the sample and the uneven representation of categories. Moreover, the sample cannot be considered random; it is supposed that percentages of reported activities are biased, as the sample structure indicates it. It can be assumed that companies that support sustainability responded more and that they were more tier 1 suppliers and large companies.

Reporting individual activities was limited to „yes" or „no" and did not reflect the degree of implementation, i.e. whether an activity had been 100% implemented, the implementation was beginning or was part of a strategic plan.

During further research, the sample size should be substantially increased, and a scale expressing the degree of performing sustainability activities should be considered.

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