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## Global Network Economy Society: Information Needs on the Ethical Framework and Trust in Transportation and Logistics Business among Users of the Google Search Engine

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**Abstract:**

**Purpose:** Diagnosis of information needs in the Internet network on the ethical framework and trust in the transportation and logistics business.

**Design/Methodology/Approach:** The article uses the methods of data analysis, topic mining, data mining, trend exploration and spatial differentiation. In addition, artificial intelligence was used to identify cause-effect relationships (Granger causality) and statistical methods, descriptive statistics, Augmented Dickey-Fuller test for data stationarity and Ljung-Box test for autocorrelation.

**Practical Implications:** Research results could be useful in three dimensions. First, they could be useful for profiling information on trust and ethical frameworks depending on the user's country and specific point in time (fashions). Secondly, they could serve to identify areas to improve awareness in this regard. Third, they could predict the demand for information based on delayed searches and linkages between issues, which is important from the information market's point of view.

**Originality/Value:** The originality of the study lies in filling the cognitive gap in the diagnosis of information needs in terms of the ethical framework and trust in the transportation and logistics business. Moreover, the study noted that the information needs of this narrow group of users of information on a given topic do not disappear once they are satisfied, and there is a delayed relationship or autocorrelation between the main issues. This means that information needs are complementary to each other, are seasonal and delayed, topics are being drilled and interest deepened.

**Keywords:** Ethical framework, Google search engine, information economy, information needs, network economy, transportation and logistics, trust.

**JEL codes:** C10, C20, D80, F60, R40.

**Paper Type:** Research article.

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## **1. Introduction**

### **1.1 Brief Overview of the Issues**

Information needs occupy a special position in the information economy. Their identification is essential for creating and profiling information, recognizing the size of the need for information and causal relationships. Information plays a huge role because it determines the making of various decisions. The transportation and logistics business is particularly exposed to decision-making and traffic movements in a given direction, bearing in mind the information on the ethical framework and trust. Information related to these issues affects the brand, risk, costs and liability of companies. While legal regulations require the fulfillment of a certain framework, trust often depends on random factors and uncertainty related to any changes of a different nature. It turns out that based on the information searched for in the Google search engine, one could draw conclusions about trends, volatility and differentiation for the interest of certain topics, searched by certain groups of content recipients. Therefore, it is important to research the information needs of Google search users about the trust and ethical framework in relation to transportation and logistics. So far, a similar study has not been conducted in relation to these issues.

### **1.2 Organisation of the Research**

The article focuses on examining the information needs for an ethical framework and trust in transportation and logistics business. The topics that have been analyzed in detail are 'corporate social responsibility', 'business ethics', 'social responsibility', 'corporate governance' and 'trust'. The aim of the article is to diagnose the information needs on the Internet network about the ethical framework and trust in transportation and logistics business. Methods specific to Data Science were used, a combination of statistical and IT methods. The article consists of five parts. The first is an introduction. The second part provides an overview of the literature in the area of three directions, information needs, global network economy, ethical framework and trust. The third part is the data and methodology description. The fourth part contains the empirical results of the research and their discussion. The article ends with conclusions.

## **2. Literature Review**

### **2.1 Information Needs**

Three decades ago, i.e., in 1989, there were information problems similar to those that scientists grapple with until today. The lack of balance in the information economy literature with regard to information needs was emphasized. The need to focus on macrostatistics was also emphasized. Macrostatistics was to be used in the development and monitoring of the information sector. Even then, the need to define and monitor the 'information sector' was expressed, being aware of certain

limitations. New information technologies (IT) were to play a special role in the conceptualization of the information economy (Miles, 1989). This approach is in line with today's realities.

The development of mobile technologies and access to the Internet is a key factor in shaping the needs of society. This relationship will be maintained in the coming decades (Zaloga and Stepień, 2020). Digital advancement has influenced advances in electronics, communications, transport, medicine, and other forms of socio-economic activity. The common denominator of this revolution is the possibilities of collecting, processing and disseminating information (Colley *et al.*, 2005), characteristic of the information economy.

Along with the forecasts and anticipated consequences of threats, the society's reactions, information needs and the assessment of sources in obtaining information change (Manandhar and Siebeneck, 2021). Therefore, it could be concluded that the information needs are dynamic changes. Interpretation of information needs could be presented as the necessary information in a particular subject available resources, including online resources (Wollmann *et al.*, 2021). This approach will be used in this work as the leading one.

It is worth emphasizing that apart from information technologies, the economics of information also deals with another economic category 'demand for information' close to the notion of 'information needs'. Very often these two terms are treated as synonyms. The demand for information could be defined as a good in the information market in the form of news, information services or access to information. It is shaped by information needs of various user groups, substitution between information resources, complementarity between information and other goods, the price of information and the income of the potential information user (Oleński, 2003). Therefore, it could be concluded that the demand for information is a narrower concept than information needs and is related to the recipient's purchasing power and the price of this information. For the purposes of identifying the information needs of applications could be a topic of mining, text mining and data analysis (Liu and Lin, 2003; Prabha and Sarojini, 2019; Wang *et al.*, 2021). These are tools specific to Data Science, in particular, that the information is sought on the network.

## **2.2 Global Network Economy**

The network economy is increasingly important in the business environment (Xu, Peng and Cornelissen, 2021). The network economy is defined in various ways. On the one hand, it relates to the global information network, i.e., the Internet and digital platforms and focuses on interconnectedness. On the other hand, it refers to long-term and lasting relationships between economies and their entities (Ustyuzhanina, Evsukov and Komarova, 2018). The second approach is related to the interpretation that the foundations of the network economy are informational and cooperative

relations between the entities of the economic system. Additionally it is worth mentioning that the relations are based on trust (Ustyuzhanina, Evsukov and Komarova, 2018).

In turn, the first approach to the network economy understood through the prism of the digital economy, i.e., social and economic activity via the Internet, mobile telephony and sensor networks, emphasizes the need not only to improve communication, but also to change consumption patterns, competition and the ways in which markets function. There are qualitative changes, in macroeconomic terms - for developed and developing economies, in microeconomic terms - business models, network organizations. The concept of the market has evolved into a win-win relationship as a reflection of the functioning of the so-called the sharing economy (one of the faces of the network economy). However the measurement of the digital economy itself is problematic (Lambin, 2014).

The two above shots fit into the network economics. It deals with the relationship between the communication system, economic networks and society. The focus is on issues such as the creation of economic networks, their development, cooperation and competition, as well as synergy. The challenge facing network economics is structural transformation, induced by qualitative changes in economic networks, collaborative structures and forms of complexity, supported by economic, communication and information growth and progress. Global shifts in transportation and telecommunications have caused shifts in patterns on a global scale. These changes affect, on the one hand, logistics systems, and, on the other hand, the production and transport system, including the division of risk between the various parties (Karlsson and Westin, 1994). Therefore, transport occupies a special place in the centre of empirical research later in this article.

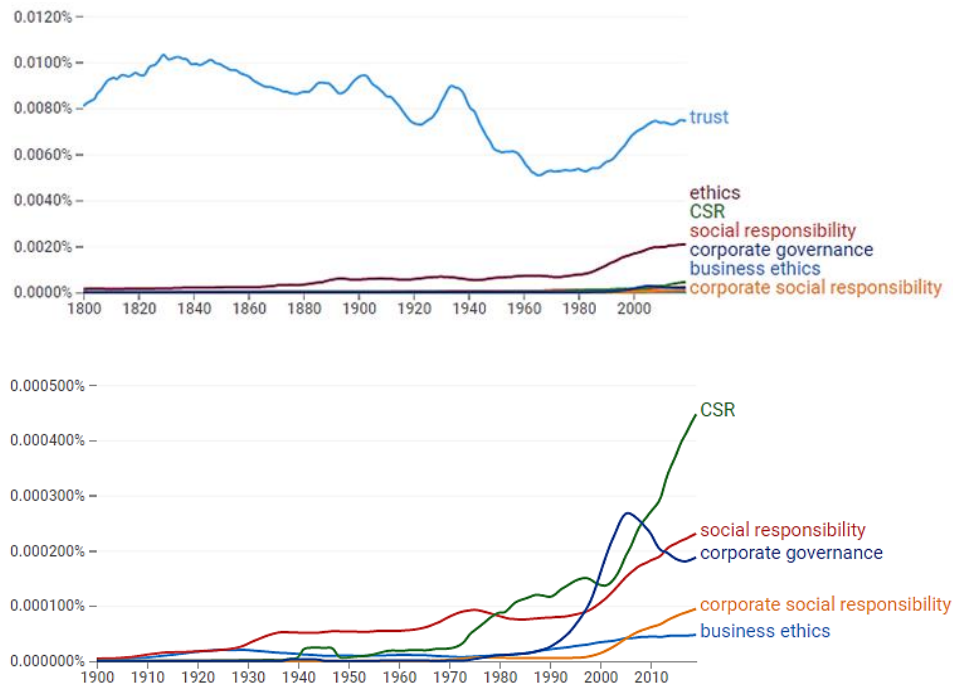
Achrol and Kotler's approach is still universal, as they note that networks are better adapted to environments rich in knowledge, fixed assets and technology, as they respond optimally and flexibly to changes (Achrol and Kotler, 1999). They cite Drucker (1991) and note that the 21st century society is based on knowledge, therefore the key resource is primarily knowledge, not only materials, work or capital. More importantly, they state that apart from structural changes, a new managerial ethos is created. A trust is an important role in clarifying the network (Achrol and Kotler, 1999). Summing up, it could be assumed that information needs, knowledge and trust constitute the foundation of the network economy.

### **2.3 Ethical Framework and Trust**

The terms 'business ethics', 'corporate social responsibility' (CSR), 'corporate governance' and 'trust' are fashionable nowadays, as evidenced by the growing interest among scientists in this subject (Figure 1). The fashion for applying these concepts also occurs in business practice and results from the desire (necessity) to survive in the common market according to the adopted rules. As Figure 1 shows,

the interest in the concepts of ‘corporate social responsibility’, ‘corporate social responsibility’, ‘business ethics’ and ‘corporate governance’ has been the subject of growing interest in publications, while the concept of ‘trust’ has mainly had a downward and slightly upward trend for years 80’s of the 20th century until today.

**Figure 1.** The use of the words ‘corporate governance’, ‘social responsibility’, ‘business ethics’ and ‘corporate social responsibility’ in the world in English-language publications according to Google Books Ngram Viewer (1800-2019 and 1900-2019)



**Source:** Google Books Ngram Viewer, 2021.

The semantic precision of the terms, business ethics, social responsibility and corporate governance has been discussed by many researchers from various disciplines, and their boundaries are still fluid. In the literature on the subject, one could find the statement that corporate governance is used to identify and enforce responsibility (Demb and Neubauer, 1992; Tayşir and Pazarcık, 2013). The concept of social responsibility is understood as any activity of enterprises aimed at reducing the negative effects of their activities, with particular focus on mitigating climate change and respecting human rights (Gjølberg, 2009; Tayşir and Pazarcık, 2013). Social responsibility and corporate governance are closely related to the inextricable relationship with business ethics (Tayşir and Pazarcık, 2013). On the one hand, business ethics analyzes moral values and norms, but on the other hand, it analyzes the effects of implementing its tools into business - it is not only theoretical, but also practical (Velasquez, 2002; Tayşir and Pazarcık, 2013).

However, there are attempts to delimit corporate social responsibility from business ethics, despite their inextricable relationship. Business ethics is treated as a set of moral principles, a foundation for making decisions, exercising power, or ways of proceeding. The interpretation of this concept has evolved in recent years under the influence of the digitization of the world, including the introduction of new technologies, forms of mobilization, the use of resources, all social practices and the globalization of business networks. The interest in the ethical framework, including business ethics, has grown in importance due to several factors, i.e., increased awareness of the use of scarce resources, increasing disparities in the distribution of wealth and the growing role of new technologies, especially in the processing of large data sets in the cloud.

Therefore, corporate social responsibility is treated as a holistic tool and an integrated component of the management strategy necessary for enterprises to fulfill their obligations towards various stakeholder groups. (Goel and Ramanathan, 2014). However, any such action should be based on trust. Trust consists in ensuring the continuity of satisfying needs, in transport - in meeting transport needs, in the information economy - in meeting information needs. Every economic activity is related to trust, which is a bond between entities. The multifaceted nature and dynamic development of the real economy impose the requirement of cooperation and trust, but also involve difficulties, uncertainty and complexity (Szaruga *et al.*, 2018). Trust within entities and between them is an important issue for maintaining the principles of sustainable business development. Any structural changes, unexpected actions affect the trust relationship. Two opposite planes are confronting, first - scandals related to the breakdown of trust and its long-term consequences; second - pressure to build trust (Warnock-Smith, Cameron and O'Connell, 2020). It should therefore not come as a surprise that in the transport or logistics business more generally, trust is of great importance. Because trust depends on the responsibility for cargo, risk and costs, and often also the entrepreneur's brand. The most flexible and least time-consuming form of obtaining information on an ethical framework or trust is to search for it on the Internet and then explore the topic around selected issues.

### **3. Data and Methods**

#### **3.1 Data**

The analysis was performed on secondary data from Google Trends. The analysis covered observations from January 2004 to May 2021. The spatial scope was globally related to the entire world, with the interest in particular topics distinguished for different countries as an average measure. The data that was obtained concerned the 2<sup>nd</sup> level of granularity (detail) and was classified in the following categories, Business & Industrial (1<sup>st</sup> level of granulation), Transportation and Logistics (2<sup>nd</sup> level of granulation). The material scope was limited to the topics that were searched for in the Google search engine, and not the search terms (words

or combinations of words). This approach guaranteed greater consistency of interest in a given issue and certainty that the searched phrase was not an accidental display of a given topic, but was a deliberate fulfillment of the information need. The topics that were searched for were, 'corporate social responsibility', 'business ethics', 'social responsibility', 'corporate governance' and 'trust'. The data obtained was presented as an index. The values were presented relatively in relation to the highest interest (highest point on the chart) for the analyzed region and time. The value of 100 indicates the peak popularity for a given issue (highest interest) and the remaining values were compared with the highest. For example, a value of 50 means 50% interest in the issue, and a value of 0 means no popularity. The interest in the topic was expressed by this index.

### **3.2 Methods**

The article uses several methods, combining statistics and IT tools, specific to Data Science. The method of topic mining and trend exploration was used at the data collection stage. Then, a spatial analysis of the distribution of interest in issues was performed, visualizing them with choropleth maps. The analyzes were mainly based on aggregate data for the world. Time series of interest in five topics were analyzed: 'corporate social responsibility', 'business ethics', 'social responsibility', 'corporate governance' and 'trust'. Descriptive statistics (average, minimum, maximum, coefficient of variation) were estimated, treating them as the background of the main analysis. The Augmented Dickey-Fuller (ADF) test for non-stationarity (without constant), the occurrence of data stationarity and the Ljung-Box (L&B) test for the occurrence of autocorrelation were examined. Then, using artificial intelligence (machine learning and data mining), Granger causality analysis was performed using the Granger test. As an aside, the Granger test also allows to identify potential variables for the vector autoregressive (VAR) model.

The following colors were used to evaluate the distributions, blue - corporate social responsibility, red - business ethics, green - social responsibility, yellow - corporate governance, purple - trust.

The ADF test for non-stationarity was used to determine whether there is a unit root. The null hypothesis of this test is, unit-root null hypothesis  $\alpha = 1$ , i.e., it assumes non-stationarity of the tested series. If  $p\text{-value} < 0.05$ , discard the null hypothesis in favor of an alternative hypothesis, no unit root, i.e., the tested series is stationary. Obtaining confirmation of the stationarity of the series entitles to perform the Granger test.

Autocorrelation analysis was performed with the L&B test, no autocorrelation. Alternative hypothesis, there is autocorrelation. With  $p\text{-value} < 0.05$ , reject the null hypothesis in favor of the alternative. Lack of autocorrelation of the series entitles to perform the Granger test. Therefore, the presence of stationarity and the lack of series autocorrelation entitle to further analysis, i.e., the Granger causality analysis.

However, the occurrence of autocorrelation is also important information in the context of the conducted research, as it suggests the seasonality of issues and the continuity of interests. Autocorrelation reports that there has been an increase in interest in a given topic based on delayed prior interest (it has been shifted along the timeline). All number of lags for monthly data were analyzed, taking the number 12 as the maximum lag (there are 12 months in a year). This selection of the maximum lag order is also conditioned by the number of observations. The obtained analysis showed that the significant lags were 1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup> and 4<sup>th</sup> order. Therefore, they are presented in further analysis.

The Granger causality test was used to test relationships between variables, obtaining information on the lags and directivity of the relationship. The null hypothesis is: no Granger causality; alternate: there is Granger causality. It was assumed that at the  $p$ -value  $< 0.05$ , the null hypothesis is rejected in favor of the alternative hypothesis. All significant relationships were examined, however, in the further evaluation for the presentation of the causality model, only those that met the condition of stationarity and lack of autocorrelation were included.

## **4. Empirical Results and Discussion**

### **4.1 Analysis of the Spatial Data and Time Series**

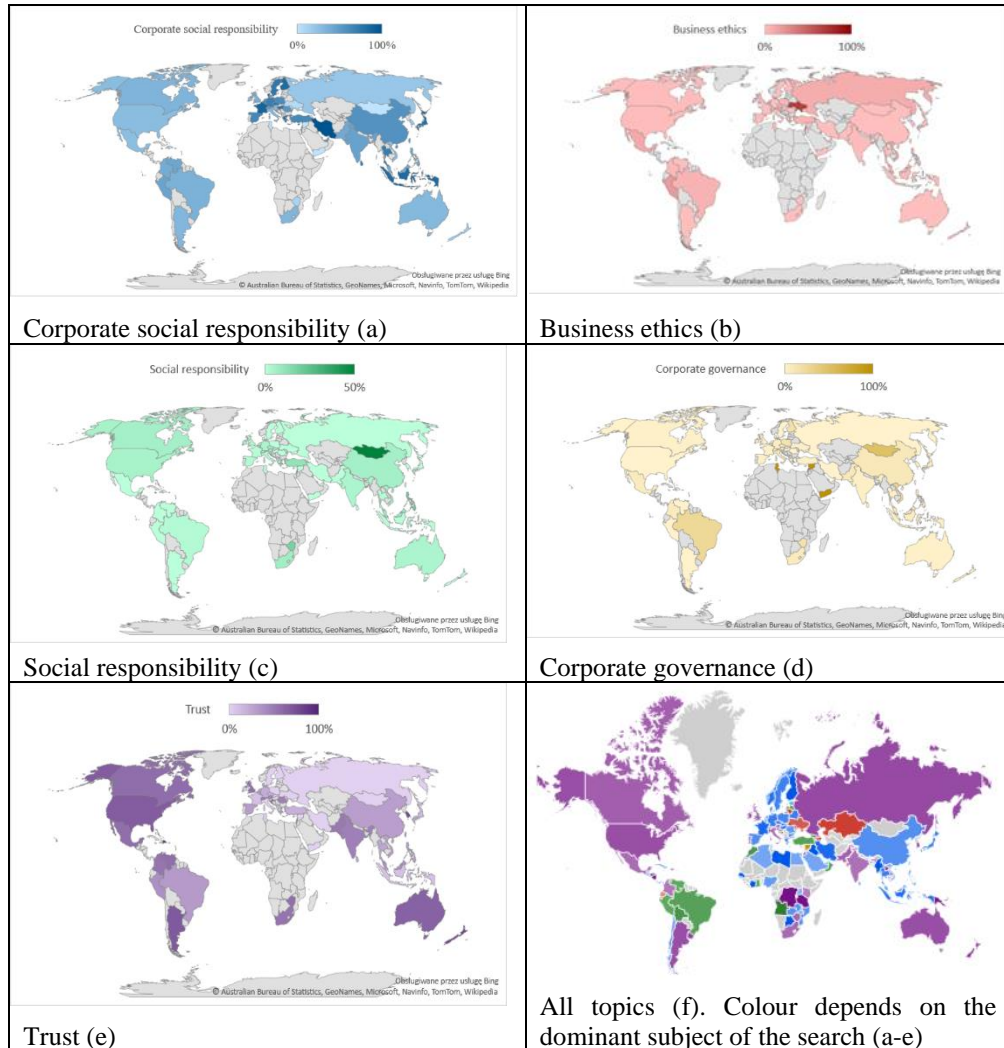
Figure 2 shows the interest in the topics in different countries. As it results, the greatest interest was in the subject of trust in transportation and logistics, smaller corporate social responsibility, social responsibility and business ethics, insignificant - corporate governance in the division of users from different countries. If these issues were analyzed spatially, one could identify countries that are not of any interest to the ethical framework or trust, and countries that pay particular attention to selected issues to a greater extent, and to others to a lesser extent. This is particularly important from the point of profiling information in relation to the territorial scope due to 1, 2 or more topics. In Europe, the information demand has been identified around the dominant issues of corporate social responsibility and business ethics, while in North America a trust, similar to Asia with an admixture of corporate responsibility, in South America and Africa you could see an assembly of these issues.

Figure 3 shows the time series for the analyzed topics collectively for all countries. The graph shows the fluctuating nature of interest in the issues, as well as time shifts and seasonality. By comparing all the lines, a certain interdependence (and delayed causation) could be seen in meeting information needs about the ethical framework and trust. The analysis of this chart shows that the global tendency has focused around the issue of 'trust' and 'corporate social responsibility'. Interest in the ethical framework and trust in transportation and logistics business, despite the fluctuating nature, has a decreasing tendency.



**Figure 2.** Information needs on the ethical framework and trust in transportation and logistics business in the world.

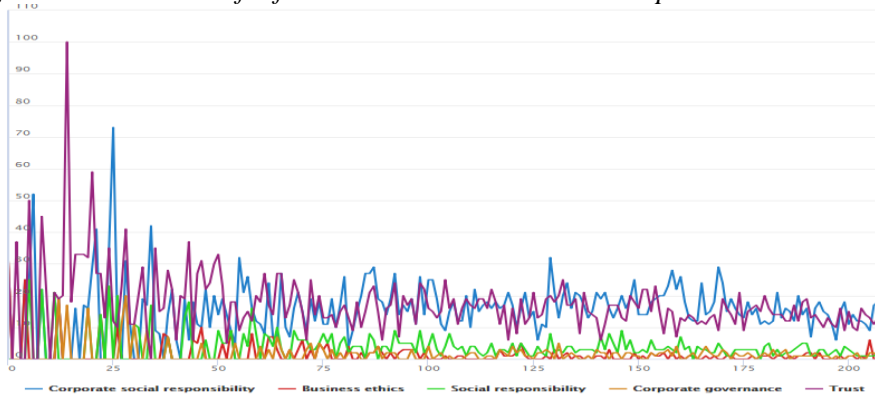
Colour: blue - CSR, red - business ethics, green - social responsibility, yellow - corporate governance, purple – trust.



**Source:** Cartograms a-e: own elaboration based on data from (Google Trends, 2021), cartogram f (Google Trends, 2021).

Table 1 presents selected descriptive statistics for spatial-temporal data for individual thematic groups. The highest average interest was obtained for the subject of ‘trust’ and ‘corporate social responsibility’, approx. 5 times lower for ‘social responsibility’ and 12 times lower for ‘corporate governance’ and 10 times lower for ‘business ethics’. For each issue, there was a seasonal lack of interest in the time period studied. The maximum level of interest for the ‘trust’ topic was equal to 100.

**Figure 3.** Time series of information needs on a selected topic



**Source:** Own elaboration based on data from (Google Trends, 2021).

The maximum level of interest in ‘corporate social responsibility’ was 73% of the level of interest in the topic of ‘trust’. The maximum level of interest for ‘business ethics’ and ‘corporate governance’ represented 31% of the maximum interest for the topic of ‘trust’. The maximum interest in the ‘social responsibility’ team was a quarter of the peak of interest in the ‘trust’ issue. The coefficient of variation shows the share of the standard deviation in the mean. Otherwise, it informs about the variability of interest over time or the homogeneity of the studied phenomenon. The analysis of this indicator shows that the interest in the subject of ‘business ethics’ or ‘corporate governance’ exceeded the value of over 200% (241.72% and 206.95% respectively).

Thus, there was a very large variation over time and large variation between countries for the interest in this issue, and the analyzed sample was not homogeneous. Similarly with the topic of ‘social responsibility’, the coefficient of variation of which was 115.52%. Half of the lower, although still high, coefficient of variation was noted for the topics of ‘corporate social responsibility’ and ‘trust’ - 57.8% and 58.7%, respectively. This means that the interest in the ethical framework and trust was not monotonous, but rather modal or regulatory changes.

**Table 1.** Selected descriptive statistics (2004:M1-2021:M5, worldwide)

Variable	Average	Minimum	Maximum	Coefficient of variation
Corporate social responsibility	15.6890	0.0000	73.0000	0.5780
Business ethics	1.49282	0.0000	31.0000	2.4172
Corporate governance	1.71770	0.0000	31.0000	2.0695
Social responsibility	3.83254	0.0000	25.0000	1.1552
Trust	17.3110	0.0000	100.0000	0.5870

**Source:** Own computations based on data from (Google Trends, 2021).

## 4.2 Analysis of Causalities

Table 2 shows the ADF test statistics. The non-stationary series are marked in gray, and the series that are stationary (for p-value < 0.05) are marked in standard color. As Table 2 shows, the time series for the interest in the subject of ‘business ethics’, ‘corporate responsibility’ and ‘corporate governance’ were stationary for the number of lags equal to 1-4, for the subject ‘corporate social responsibility’ for the number of lag equal to 1-2, and for the subject ‘trust’ only for number of lag equal to 1.

**Table 2.** Augmented Dickey-Fuller (ADF) test statistics

No of lags	Corporate social responsibility	Business ethics	Social responsibility	Corporate governance	Trust
1	-3.3482***	-9.1823***	-5.8500***	-7.6269***	-3.0611***
2	-2.3792**	-7.2470***	-3.5087***	-5.4255***	-1.8977*
3	-1.5665	-4.5711***	-2.7213***	-4.9992***	-1.3617
4	-1.4427	-6.0764***	-2.2774**	-4.0297***	-1.1397

**Note:** No means number.

\*, \*\*, \*\*\* - significance was marked at the level below, respectively 10%, 5%, 1%.

**Source:** Own computations based on data from (Google Trends, 2021).

Table 3 presents tests for the occurrence of autocorrelation. Gray color shows the number of lags for which autocorrelation has been identified, and the standard color - where this autocorrelation does not occur. In the case of interest in the subject of corporate governance, the autocorrelation did not occur with any number of lag. Lack of autocorrelation was also noted for 3 numbers of lag in the case of interest in the issue of ‘corporate social responsibility’ (number of lag: 2-3) and ‘business ethics’ (number of lag: 1-3). For the ‘trust’ and ‘social responsibility’ issues, delays for two orders were noted, numbers 1-2 and 2 and 4, respectively. Autocorrelation is only important in the context of the analysis of seasonality or time shifts. When it occurs, it means that for this number of lag (in months) there is a relationship: an increase in interest in a given topic depends on its delayed values; interest in the month preceding the number of lag.

**Table 3.** Ljung-Box (Q) test for autocorrelation

Number of lags	Corporate social responsibility	Business ethics	Social responsibility	Corporate governance	Trust
1	4.9932 [0.025]	-0.1345 [0.7140]	4.7182 [0.0300]	0.2176 [0.6410]	0.2798 [0.5970]
2	-5.9981 [0.050]	0.5018 [0.7780]	5.2580 [0.0720]	-2.5593 [0.2780]	1.6109 [0.4470]
3	6.7433 [0.081]	2.6878 [0.4420]	10.4984 [0.0150]	2.6276 [0.4530]	24.8940 [0.0000]
4	9.3527 [0.053]	16.8975 [0.0020]	10.5418 [0.0320]	5.2189 [0.2660]	29.9552 [0.0000]

**Note:** The p-value is given in square brackets.

**Source:** Own computations based on data from (Google Trends, 2021).

**Table 4.** Granger Causality test results

Number of lags	p-value	Cause	Direction	Effect
1	0.0030	Corporate social responsibility	→	Corporate governance
1	0.0430	Business ethics	→	Corporate social responsibility
1	0.0080	Social responsibility	→	Corporate social responsibility
1	0.0030	Trust	→	Social responsibility
1	0.0060	<b>Corporate social responsibility</b>	→	<b>Trust</b>
2	0.0360	<b>Business ethics</b>	→	<b>Social responsibility</b>
2	0.0360	<b>Corporate governance</b>	→	<b>Social responsibility</b>
3	0.0060	<b>Business ethics</b>	→	<b>Corporate governance</b>
4	0.0110	Corporate governance	→	Business ethics
4	0.0370	Social responsibility	→	Business ethics
4	3.0000e-05	<b>Social responsibility</b>	→	<b>Corporate governance</b>

*Source:* Own computations based on data from (Google Trends, 2021).

Table 4 presents the results of the Granger causality test. The direction of dependence which meets the condition of stationarity and lack of autocorrelation between data series is presented in bold. The variable in gray is marked, which for the given number of lag did not meet at least one of the above-mentioned conditions (most often autocorrelation). As shown by the verification of causality, 5 relationships were identified, including one feedback.

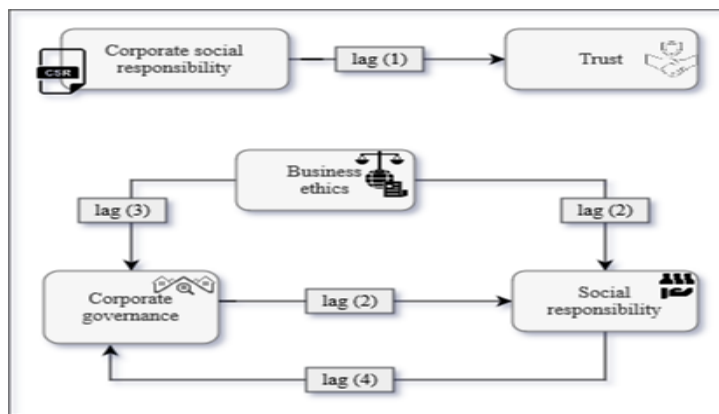
Based on the results of the Granger causality test, it could be concluded that the interest in the subject of ‘corporate social responsibility’ resulted in the interest in the subject of ‘trust’ with a delay of 1 month. The interest in the subject of ‘business ethics’ or ‘corporate governance’ was ahead of the interest in the subject of ‘social responsibility’ and influenced its popularity. The popularity of the topic of ‘corporate governance’ depended on the popularity of the topic of ‘social responsibility’ 2 months ago. These dependencies are presented in the form of a dependency model in Figure 3.

As shown in the Figure, 5 issues could be separated from each other. Causality occurred between the topic of ‘corporate social responsibility’ and ‘trust’ (group 1) and between the issues of ‘business ethics’, ‘corporate social responsibility’ and ‘corporate governance’ (group 2). A feedback loop was identified between the information needs on ‘social responsibility’ and ‘corporate governance’.

The first dependence could be territorially related mainly to Europe and Africa, the second - to Asia, Africa and North America. However, the internet is a space where territorial boundaries are blurring as a result of globalization. Therefore, it could be assumed that the interest in the studied issues is transferred from one territorial area

to another, in isolation from administrative boundaries. These dependencies probably have their justification in defining them and legal regulations, which entail the obligation to implement certain practices or take specific actions. The transportation and logistics business, by its nature, undertakes international (global) activities, therefore the interest in the ethical framework and trust is secondary, and the deepening of a given topic results from the scope of responsibilities, transport management, risk and costs of transport.

**Figure 3.** Granger causality information needs about topic (business ethics, social responsibility, corporate governance, corporate social responsibility and trust) in transportation and logistics business among users of the Google search engine



Source: Own elaboration.

## 5. Conclusions

The research carried out is important for identifying information needs in the transportation and logistics business in framework of ethics and trust. On the one hand, they indicate spatial and temporal (fashions) differentiation on given topics, and on the other, an increase in interest conditioned by an anticipated interest in synonymous issues. The fluctuating nature of information needs is noticeable, with high variability.

However, according to the study, these needs are insatiable and come back, although they weaken with time. The research could be useful in terms of information profiling, but also from the point of view of the administrator and exploring topics for a specific type of activity and raising awareness for selected groups of recipients. The study could be extended by the analysis of related topics, most frequently searched for in the discussed thematic groups, and the analysis of the structure.

**Authors' Contributions:** All the authors have equally contributed to this paper. Elżbieta Szaruga, Elżbieta Załoga created the conceptualisation; Elżbieta Szaruga conducted the analysis; Elżbieta Szaruga, Elżbieta Załoga carried out the

investigation; Elżbieta Szaruga, Elżbieta Załoga described the methodology; Elżbieta Załoga watched over the work administration; Elżbieta Szaruga, Elżbieta Załoga prepared the resources; Elżbieta Szaruga, Elżbieta Załoga supervised the work; Elżbieta Szaruga, Elżbieta Załoga wrote the paper.

**Conflicts of Interest:** The authors declare no conflict of interest.

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