AN EMPIRICAL STUDY ON TURKISH LOGISTICS COMPANIES' ATTITUDES TOWARD ENVIRONMENTAL MANAGEMENT PRACTICES

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Abstract – This paper aims to analyze the factors influencing Turkish logistics companies' attitudes toward environmental management practices. The determinant factors include technological, organizational and environmental dimensions. Data to test research hypotheses came from a questionnaire survey on logistics companies in Turkey. Research findings reveal that companies that apply environmental management practices found these practices consistent with their company's values and according to them, it's easy to integrate environmental practices with company's existing system. Based on the research results, the paper discusses implications and opportunities for future research.

Keywords – environmental management practices, innovation, logistics, stakeholder theory, sustainability

INTRODUCTION

Sustainability is important for businesses and supply chains, as stakeholders are increasingly concerned about society, the environment and economic development [1]. Companies' actions affect stakeholders.

Stakeholder theory argues that there are many parties involved, such as employees, customers, suppliers, financiers, communities, governmental bodies, political groups, trade associations, and trade unions. Even competitors are sometimes counted as stakeholders – their status being derived from their capacity to affect the firm and its stakeholders [2]. An increasing number of companies are under pressure to develop environmentally responsible and friendly operations [3]. Governmental regulations, corporate social responsibilities, and stakeholders' demands make environmental management practices (EMP) an integral part of organizations' strategic planning process [4]. In recent years, the number of studies that analyze the relationship between companies and the natural environment has grown. This is because global environmental problems, such as climate change, have raised the awareness of society in general concerning the impact of business activities on planets sustainability [5]-[6]-[7]. Most studies on environmental issues focus on the manufacturing sectors that may consume considerable natural resources and little research pays attention to the environmental issues in service sectors because most services sectors may consume less natural resources so that they have smaller impact on the environment when compared to manufacturing sectors [8]. Logistics companies carry out logistics activities for their customers, including warehousing, transportation, inventory management, order processing, and packaging [9]. Logistics is a link in providing green products from the manufacturers to the consumers. Green products will be truly green if the value adding logistics activities also become green [10]. Thus, environmental issues in the logistics industry are significant for studying. However, there is only a limited number of articles which analyze environmental issues in the logistics industry [11] and also there is a lack of studies in the field of environmental sustainability and performance focusing on developing countries [1]. Considering that situation, Turkey has been selected for this study. This paper analyzes the influences of technological, organizational, and environmental factors on Turkish logistics companies' attitudes toward environmental management practices and this paper will contribute to the literature by examining factors on Turkish logistics companies' attitudes toward environmental management practices.

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RESEARCH HYPOTHESES

According to Damanpour [12], adaptation of environment management practices is a part of the technical innovation process. When looked at the literature it can be seen that there are a number of factors influencing the technical innovation. Mainly these factors are categorized as technological, organizational, and external environmental factors [13]. Lin & Ho [14] also have found that these factors played a significant role on analyzing the Taiwanese logistics companies attitudes towards green practices. Using the research framework created by Lin & Ho [14], this study will analyze the influences of technological, organizational, and environmental factors on Turkish logistics companies' attitudes toward environmental management practices.

Technological Factors

H1-1: The perceived environmental practices' complexity has a negative influence on Turkish logistics companies' attitudes toward environmental management practices.

H1-2: The perceived environmental practices' compatibility has a positive influence on Turkish logistics companies' attitudes toward environmental management practices.

H1-3: The perceived environmental practices' relative advantage has a positive influence on Turkish logistics companies' attitudes toward environmental management practices.

Organizational Factors

H2-1: The quality of human resources has a positive influence on Turkish logistics companies' attitudes toward environmental management practices.

H2-2: Organizational support has a positive influence on Turkish logistics companies' attitudes toward environmental management practices.

Environmental Factors

H1-1: The perceived environmental practices' complexity has a negative influence on Turkish logistics companies' attitudes toward environmental management practices.

H1-2: The perceived environmental practices' compatibility has a positive influence on Turkish logistics companies' attitudes toward environmental management practices.

H1-3: The perceived environmental practices' relative advantage has a positive influence on Turkish logistics companies' attitudes toward environmental management practices.

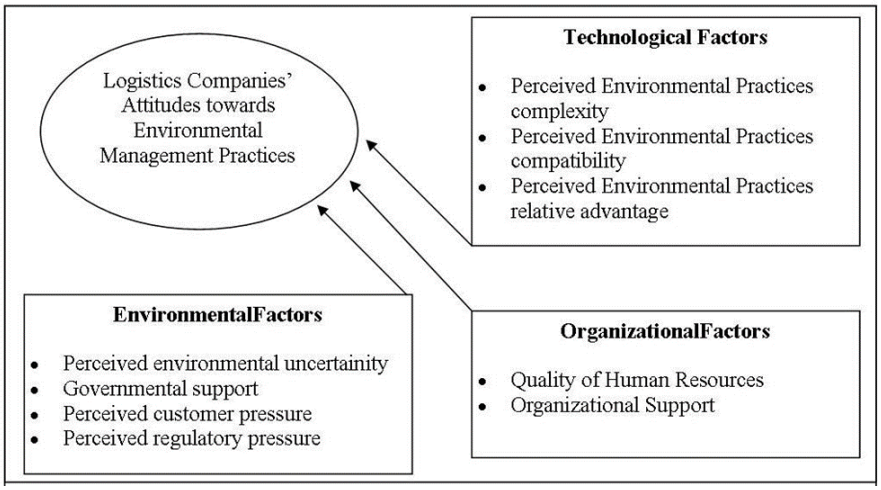

Figure 1. Research Conceptual Model

METHODOLOGY

Sample and Data Collection

To examine the influences of proposed factors on environmental practice adoption, data were collected by means of mailing questionnaires to logistics companies in Turkey. Seven thousand nine hundred thirteen samples were drawn from a list of logistics companies provided by Turkey IMEAK Marine Chamber of Commerce. Five hundred seventeen of them were located in İzmir and they composed this study's sampling unit. Extent of this study is in Turkey in Izmir. This study was conducted with 95% confidence level and with 5% margin of error. Judgmental technique of nonprobability techniques was used as a sampling technique in this study. According to this judgment; Logistics companies have 50% of shares due to nature of the study, logistics companies must be core part of this study's sample, and Scholars have 25% shares because also scholars are the main conductor and significant contributors of this subject. So they form second major group of this study. Ports have a reasonable share with 20% in the sample because they are an important part of logistics chain and environmentality is essential for them. Regulatory Bodies are one of the drivers for developing environmental management practices so they are included in sample for some extent with 5%.

FINDINGS

Reliability Analysis

Determinant Factors	Cronbach's Alpha	Number of Items
Technological Factors	,783	10
Organizational Factors	,918	8
Environmental Factors	,807	11
TOTAL	**,925**	**29**

According to SPSS reliability test results; ten variables of technological factors have 0,783 Cronbach's Alpha value, eight variables of organizational factors have 0,918 Cronbach's Alpha value and eleven variables of environmental factors have 0,807 Cronbach's Alpha value. At the end, total Cronbach's Alpha value of this study is 0,925 and because it is bigger than 0,70 it is assumed that, this study is reliable.

Descriptive Statistics

	Frequency	Percent
Company or Work Type		
Logistics Company	18	60
Scholar	6	20
Port	2	6,7
Regulatory Body	4	13,3
The amount of Time Served by the Company		
0 to 5 years	5	16,7
6 to 14 years	6	20
15 to 20 years	23	10
More than 21 years	16	53,3
Have the Company Branch or Representative Office		
Yes	20	66,7
No	10	33,3
Environmental Management Practices, Implementation Status		

Yes	21	70
No	9	30

[continued]

Gender of the Person Surveyed		
Male	16	46,7
Female	14	53,3
TOTAL	30	100

According to descriptive statistics results; company and work types in the study consist of, 60% logistics company, 20% scholar, 13% regulatory body and 7% port. 53% of these companies are older than 21 years old, 20% of them are in the sector between 6 to 14 years, 16% of them are in the sector between 0 to 5 years and lastly 7% of them are in the sector between 15 to 20 years. 67% of the companies have branch or representative office in different city or abroad and 33% of that companies have not. Also 70% of the companies in the study is implementing environmental management practices in their companies.

Hypotheses Results

Hypotheses results of technological factors are as follows:

H1-1: The perceived environmental practices' complexity has a negative influence on Turkish logistics companies' attitudes toward environmental management practices.

	Levene sig.	**Sig.**
Understanding the environmental practice is difficult.	,509	,120
Learning the environmental practice is difficult	,331	,331
Sharing the knowledge of the environmental practice is difficult.	,204	,109
Using the environmental practice needs many experiences.	,449	,366

According to SPSS test results, main hypothesis is rejected. No significant result between these two variables could be found. Four factors of perceived environmental practices' complexity and test results are given above table.

H1-2: The perceived environmental practices' compatibility has a positive influence on Turkish logistics companies' attitudes toward environmental management practices.

	Levene sig.	**Sig.**	**t**
The environmental practice is compatible with our existing logistics operations.	,002	,496	
The environmental practice is consistent with our company's values.	*,597*	*,031*	*2,483*
Integrating the environmental practice with company's existing systems easy.	*,246*	*,000*	*4,857*

According to SPSS test results, main hypothesis cannot be rejected for two variables. According to group statistics results companies that apply environmental management practices found these practices consistent with their companies' values and according to them it is convenient to integrate environmental practices with companies' existing system. Factors related to perceived environmental practices' compatibility and results of them are given above table.

H1-3: The perceived environmental practices' relative advantage has a positive influence on Turkish logistics companies' attitudes toward environmental management practices.

	Levene sig.	**Sig.**
The environmental practice can provide better environmental performance.	,584	,462
The environmental practice can provide higher economic benefits.	,601	1,000
The environmental practice can enhance our company's reputation.	,903	,973

According to SPSS test results, main hypothesis is completely rejected for all three factors. These factors are; the environmental practice can provide better environmental performance, the environmental practice can provide higher economic benefits and the environmental practice can enhance our company's reputation. The results of these factors are given above table.

Hypotheses results of organizational factors are as follows:

H2-1: The quality of human resources has a positive influence on Turkish logistics companies' attitudes toward environmental management practices.

	Levene sig.	**Sig.**
Employees can learn new technologies easily.	,658	,379
Employees can share knowledge with each others.	,401	,499
Employees can easily use new technologies to solve problems.	,510	,797
Employees can provide new ideas for our company.	,421	,838

According to SPSS test results, main hypothesis main hypothesis is completely rejected. No significant result between these two variables could be found. Four factors of the quality of human resources and test results are given above table.

H2-2: Organizational support has a positive influence on Turkish logistics companies' attitudes toward environmental management practices.

	Levene sig.	**Sig.**
Top management encourages employees to learn environmental practices.	,589	,069
Our Company provides rewards for employees' environmental behavior.	,457	,605
Our company provides resources for employees to learn environmental practices.	,593	,091
Top management can help employees when they face environmental problems.	,492	,183

According to Spss test results, main hypothesis is rejected. No significant result between these two variables could be found. Four factors of the organizational support and test results are given the table above.

Hypotheses results of environmental factors are as follows:

H3-1: Perceived environmental uncertainty has a positive influence on Turkish logistics companies' attitudes toward environmental management practices.

	Levene sig.	**Sig.**
Predicting customers' preferences is difficult.	,238	,486
Predicting competitors' behavior is difficult.	,480	,581
The advance in new logistics service modes is quickly.	,034	,548
Customers' preferences vary frequently.	,012	,421

According to SPSS test results, main hypothesis is rejected. No significant result between these two variables could be found. Four factors of perceived environmental uncertainty and test results are given above table.

H3-2: The governmental support has a positive influence on Turkish logistics companies' attitudes toward environmental management practices.

	Levene sig.	**Sig.**
Government provides financial support for adopting environmental practices.	,544	,400
Government provides technical assistance for adopting environmental practices.	,143	,672
Government helps training manpower with environmental logistics skills.	,549	,289

According to SPSS test results, main hypothesis is rejected. No significant result between these two variables could be found. Three factors of the governmental support and test results are given above table.

H3-3: The perceived customer pressure has a positive influence on Turkish logistics companies' attitudes toward environmental management practices.

	Levene sig.	**Sig.**
Our customers require us to improve environmental performance.	,523	,348
Caring for the environment is an important consideration for our customers.	,891	,517

According to SPSS test results, main hypothesis is rejected. No significant result between these two variables could be found. Two factors of the perceived customer pressure and test results are given above table.

H3-4: The perceived regulatory pressure has a positive influence on Turkish logistics companies' attitudes toward environmental management practices.

	Levene sig.	**Sig.**
Government sets environmental regulations for logistics operations.	,609	,419
Industrial associations require us to conform to environmental regulations.	,495	,587

According to SPSS test results, main hypothesis is rejected. No significant result between these two variables could be found. Two factors of the perceived regulatory pressure and test results are given above table.

CONCLUSION AND FURTHER RESEARCH

When analyzed findings part of the study eight out of nine hypotheses constructed for the study are rejected. It is concluded that only the compatibility of environmental management practices has influence on Turkish logistics companies. According to survey results, companies that apply environmental management practices found these practices consistent with their company's values and according to them, it's easy to integrate environmental practices with company's existing system. Other eight hypotheses of the study rejected for this study's sample. As a conclusion, there could not be found any significant relation organizational and environmental factors between environmental management practices.

Because of the usage of questionnaire survey, the results of this study may suffer from the respondent bias. In addition to that, a study with the inclusion of different countries or industries may lead to conclusions different from this study. When analyzed similar studies findings, this part of our results found different from general literature. Because of the time limitation of this study, sample size couldn't be extended for the desired amount. Perhaps the further studies can be conducted on a wider size of sample that can bear varying results.

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