

ATTITUDES, OPINIONS AND BEHAVIOR OF MANAGERS ON APPLICATION OF ECOLOGICAL MARKETING IN THEIR BUSINESS - TESTING HYPOTHESES - CASE STUDY: BRAŞOV COUNTY

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Abstract: *This paper presents results of a quantitative research which studies the attitudes, opinions and behavior of managers of companies in Brasov on application of ecological marketing in their business. The research method used is a sample survey based. Research objectives are considering to determine the extent to which managers know and apply ecological marketing, reasons for which the ecological marketing application is a long-term strategy, views on the opportunity to apply ecological marketing etc. Conclusions drawn from testing of hypotheses of research show that, generally, managers of local firms consider ecological marketing as a long-term strategy of the company. The percentage of managers that applied ecological marketing in companies does not exceed 60%. A relatively small percentage of respondents believes that the application of ecological marketing within firms is a necessity, a social responsibility that can bring long-term benefits to companies.*

Key words: *green marketing, ecological marketing, inquiry based survey, quantitative research..*

1. Introduction

Ecological marketing research is used to explore the opportunities and challenges of marketing, monitor marketing performance, measure and improve marketing actions and a better understanding of marketing and environmental markets. [7, p. 7]

Marketing research plays an important role in the marketing system because they provide the information necessary for its operation. However, small and medium

enterprises, because of the economic crisis, have reduced the budget for marketing activities. [10, 2013, p.144]

The main method of obtaining primary data is survey-based investigations. This involves communication with subjects that are part of a representative sample of the population under consideration.

Specific to this method is the use of structured questionnaire. This refers to a degree of standardization imposed by the data collecting process. [9, 2007, p.183]

The main methods of communication

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with subjects, depending on the way of data collection, are [9, 2007, p 184 -193]: face to face investigation; survey by post; survey by phone; electronic methods.

Survey face to face - Face to face interviews are methods often used in marketing research involving a dialogue between operators and the respondent.

Advantages of investigation are [9, 2007, p.183]:

- 1 questionnaire is easy to administer;
 - 2 obtained data are reliable because the answers are limited to the predefined;
- coding, data analysis and interpretation is made relatively simple.

2. Quantitative research – generally data

Type of Research

Quantitative research seeks to deepen ecological marketing topics, analyze the importance and impact that it has or that it will have on firms, the extent to which application of green/ecological marketing by Romanian companies will bring them benefits in the short, medium and long term. [6, 2012]

The research instrument is a questionnaire with 36 questions. The questionnaire survey was drawn from the objectives and it was directly administered to the sample members, at their headquarters.

The answers were collected using the direct investigation method. *Face to face* interviews were conducted over a period of 45-60 minutes. Respondents are persons in the management of the companies, namely, general managers, marketing executives, responsible for environmental managers. It was intended to complement operative questionnaires, subjects answering all the questions contained in the questionnaire, and the answers were complete and accurate.

Population under Investigation

Studied population consists of enterprises / units / economic entities which are members of the Chamber of Commerce and Industry Braşov.

The observation unit is the individual, the person who actually provides this information, namely the top management staff of the companies.

The unit of analysis is the business / units / economic entities which are members of the Chamber of Commerce and Industry Braşov.

The sampling unit is the business / units / economic entities which are members of the Chamber of Commerce and Industry Braşov.

Sample's Size and Structure

To determine the sample size for random sampling was considered a level of error of $\pm 5\%$ and a confidence level of 95%. According to z distribution table, to these values corresponds the value of 1.96.

Due to lack of information about p value, it will be considered by 50%, which leads to the maximum standard deviation can be obtained for percentages (binary scale).

The sample's size for percentage can be determined using the following formula:

$$n = \frac{z^2 \times p \times q}{E^2}$$

$$q = 100 - p$$

where:

z_c - squared coefficient corresponding z confidence level;

p - The estimate of the percentage in case of success;

q - The estimate of the percentage in case of failure;

E - The permissible error in percent;

n - The sample's size.

Thus, we have:

$$n = \frac{1,96^2 \times 50 \times 50}{5^2} = 384$$

According to this formula, the size of sample is of 384 people.

Chosen sampling method is *simple random sampling with non-return ball* or *simple random sampling without return*.

In this case, the sample changes from a drawing to another, and the probability of inclusion in the sample of unit is not same anymore for each unit. This method assumes that a sampling unit can be sampled once. In marketing research this method provides more accurate results and provides great advantages in operational terms" [8, 2004, p.134].

Limits of the Research

Although quantitative research produces a large number of information and allows generalization of the results to the entire population, there are some limitations in terms of their usefulness [6, 2012].

1. Providing erroneous data.

Respondents may be influenced by characteristics of interviewers and provide erroneous data.

2 .Few data that can be obtained.

Quantitative research is based on a more rigid structure and a limited number of questions to answer. This feature is a potential limitation in terms of complexity and level of detail of recorded responses.

3. The duration of time of research is very long

The period of time for conducting an interview lasts up to 1:00 to 1:30 hours. The number of interviews per day is limited. All this makes that time for completion of all questionnaires to be generally high for several weeks.

Subjects of research as part of management of companies are very busy people, so their willingness to participate in the interview is lower.

4. Costs of interviews are very high.

Costs refer to both the research staff to be paid, motivated, prepared, and supervised, and the costs of obtaining information about the companies that were the subject of research that are extremely high.

3. Testing hypotheses

The Presentation of the Research Hypotheses

The type of research presented in this paper is descriptive – explanatory quantitative research.

The research can be regarded as descriptive because it describes the situation in Braşov County on the application of ecological marketing by managers in their business.

The research is based on the following general assumptions:

Hypothesis 1: 70% of managers of local firms considers ecological marketing a long-term strategy of the company.

Hypothesis 2: 60% of managers of local firms applies ecological marketing mix in their companies.

Statistical hypotheses linking the general assumptions and variables investigated are:

Hypothesis 1:

H0: Not more than 70% of managers from Braşov's companies consider ecological marketing a long-term strategy of the company.

H1: More than 70% of managers from Braşov's companies consider ecological marketing a long-term strategy of the company.

Hypothesis 2:

H0: Not more than 60% of the managers of local firms apply ecological marketing mix in their companies.

H1: More than 60% of the managers of local firms apply ecological marketing mix in their companies.

Quantitative marketing research conducted had the following objectives [6, 2012]:

1. Determining the extent that managers of companies from Brasov consider that the application of ecological marketing would be a good long-term strategy.

2. Determining the extent that managers of companies from Braşov apply ecological marketing mix in their companies.

The Tests of Research Hypotheses

Hypothesis 1 states that 70 % of managers from Braşov's companies consider ecological marketing a long-term strategy of the company.

H0: Not more than 70 % of managers from Braşov's companies consider ecological marketing a long-term strategy

of the company.

H1: More than 70 % of managers from Braşov's companies consider ecological marketing a long-term strategy of the company.

Test Statistics

In your opinion, which is the main reason that you consider appropriate to apply ecological marketing in your business?

Table 1

The distribution of the observed frequencies and of the expected frequencies

	Observed N	Expected N	Residual
1 = is a long-term strategy	21	60,8	-39,8
2 = brings market benefits to company	80	60,8	19,3
3 = contributes to sustainable economic development	57	60,8	-3,8
4 = is a social responsibility, a necessity	85	60,8	24,3
Total	243		

Source: authors' processing of data from quantitative research

The calculated values for χ^2 test

Table 2

	In your opinion, which is the main reason that you consider appropriate to apply ecological marketing in your business?
Chi-Square(a)	
df	
Asymp. Sig.	

Source: authors' processing of data from quantitative research

a 0 cells (,0%) have expected frequencies less than 5. The minimum expected cell frequency is 60.8

If $\chi^2_{calc} \leq \chi^2_{\alpha}$; df – H0 hypothesis is accepted, there are no differences between the variable distribution and theoretical distribution. [2, 2006, p.128-131; 3, 2009, p. 144-159]

If $\chi^2_{calc} > \chi^2_{\alpha}$; df – H1 hypothesis is accepted, there are differences between the variable distribution and theoretical distribution.

Number of degrees of freedom (df) is calculated based on the number of lines of

the table of frequencies (the number of categories of responses): $df = r-1 = 4-1 = 3$

$$\chi^2_{calc} = (21 - 60.8)^2 / 60.8 + (80 - 60.8)^2 / 60.8 + (57 - 60.8)^2 / 60.8 + (85 - 60.8)^2 / 60.8 = 42.02$$

$$\chi^2_{0.05}; 3 = 7.81$$

$\chi^2_{calc} = 42.02 > \chi^2_{0.05}; 3 = 7.81$, so H1 is accepted, i.e. more than 70 % of managers from Braşov's companies consider ecological marketing a long-term strategy of the company.

The table shows calculated value of test $\chi^2_{calc} = 42,021$ („Chi-Square (a)”, number of degrees of freedom (“df = 3”

and the minimum significance level that can accept the alternative hypothesis H1 (“Asymp. Sig”).

Considering that minimum significance level is equal to zero and it is less than 0.05 (0.000 <0.05) the alternative hypothesis H1 is accepted.

Hypothesis 2 states that 60% of the managers of local firms apply ecological

marketing mix in their companies.

H0: Not more than 60% of the managers of local firms apply ecological marketing mix in their companies.

H1: More than 60 % of the managers of local firms apply ecological marketing mix in their companies.

H0: $\pi = 60\%$

H1: $\pi > 60\%$ (right-sided test)

One-Sample Statistics

The Indicators of descriptive statistics at the sample level

Table 3

In your opinion, do you apply ecological marketing mix, i.e. ecological product, ecological price, ecological distribution, in your company?	N	Mean	Std. Deviation	Std. Error Mean
	243	,5679	,49639	,03184

Source: authors’ processing of data from quantitative research

One-Sample Test

The obtained data after applying t Student test

Table 4

In your opinion, do you apply ecological marketing mix, i.e. ecological product, ecological price, ecological distribution, in your company?	Test Value = 0.6					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
	-1,008	242	,314	-,03210	-,0948	,0306

Source: authors’ processing of data from quantitative research

In the sample that answered this question, the average of binary feature is 0.568, which means that 56.8% of respondents apply ecological marketing mix in their companies. Deviation value from the Sample average is 0,032.

Critical ratio value is $t_{obs} = -1,008$. This is less than the value in Table Student t distribution for unilateral test t (0.05, 242) = 1.64 Therefore the null hypothesis H0 is accepted - we cannot guarantee a 95% probability that more than 60% of managers of companies in Brasov applies

ecological marketing mix in companies, even if this is the conclusion that can be drawn from the sample.

This decision we can take also to the minimum significance level that supports the alternative hypothesis (Sig. 2-tailed), which is greater than 0.05, which means that we cannot guarantee a 95% probability that percentage of those applying ecological marketing mix in their firms is different from 60% in the population studied. Therefore, the alternative hypothesis cannot be accepted, neither if

use unilateral test, because according to the null hypothesis, proportion in the population studied may be equal to 60%

4. Conclusions

The results of quantitative research conducted among companies in Braşov County revealed the following conclusions:

1) More than 70% of managers of Brasov firms consider ecologic marketing a long-term strategy of the company.

2) No more than 60% of managers of local firms apply ecological marketing mix in their companies.

3) A percentage of 22.1% of respondents believes that the main reason for the application of ecological marketing in their companies is appropriate: it is “social responsibility, it is a necessity”, and 20.8% believes that the reason is that it “brings market benefits to the company”.

This information will be used to substantiate the marketing strategies of companies in Braşov County, Romania, in addressing industry sector.

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