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Contribution to the methodology for determining the competitiveness of a domestic product (on example of geotextile)

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ABSTRACT

The idea of this paper is to align the business decision-making process with detected product competitiveness characteristics of the domestic company on the domestic market. For this paper was designed "proposal of the operational steps of a simple market and product research methodology", for the existing product in the existing market. These operational steps should be a small contribution for the development of rules and procedures for managing marketing functions in business activities. According to literature, for this paper available and explored, there is a room to research the impact of such procedures and rules in order to increase the selling efficiency of products in terms of detected market circumstances and comparative advantages. Therefore, an indicative question was set down for this paper: "How much domestic product is competitive on the domestic market?" Through an example of geotextile, the competitiveness of domestic products was investigated in compare with foreign products by determining certain characteristics that affect purchasing decisions. An analysis of the Croatian geotextile market was conducted, competitive products were compared and consumer preferences were explored when deciding on purchases. The research results indicate the necessity of applying, even simple, product and market research methodologies. Namely, the analysis of the results showed that the qualitative competitiveness of domestic products in relation to the foreign products is not satisfactory, the price is not the most important deciding factor and the domestic origin of the product as a decision making factor is not important.

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1. INTRODUCTION

The marketing concept is intentionally conceived as a systematic approach to free market, and business policy management in function of set business goals based on concept of marketing. A large part of business processes should lean on the concept of marketing. On the other hand, the phenomenon of globalization has indicate to the significant linkage between the various and the most distant national economies. (Giddens 1999, Weizsäcker 1999, Altvater 2005, Desai 2006). „The 2007-08 financial crisis affected many countries simultaneously and led to a global economic crisis unseen since the Great Depression.“ (Huwart, Verdier, 2013:126). The global crisis, also called the "Great Recession" that affected the world with uneven intensity, did not have the same effects, and did not

last the same, in all countries. But this same crisis has also highlighted the need to protect national economies, as far as possible within the framework of open market economies.

This opinion can be confirmed by other researches, for example, where some evidence point out „the role of globalized banks in transmitting financial stresses to the real economy during the global financial crisis … non-resident creditors was transmitted domestically through a significant reduction in bank credit supply. Resident subsidiaries and branches of foreign-owned banks reduced lending by a larger amount than domestically-owned banks“ (Shekhar, 2012:225). This observation is referring to crisis conditions, when all business entities, including ones in financial sector, operate very cautiously in their business. Can particular countries, and in what way, create the conditions for continuous development of entire national economy based on various measures and protective policies?

Whatever the answer it is, this is not the question of this paper. However, in terms of global business and competition, for every business entity is extremely important how it plans and sets its business operations. The effects/impacts of global processes can be an opportunity, but for unprepared business entities, it can be a great threat. For this reason, the advantages and disadvantages of the products and services of particular companies derive from the approach to business operations i.e. do they use basic management functions and marketing concept in business. So, the question of this paper is how much market research (simple procedure to determine product competitiveness and consumer preference) can be helpful for companies? The assumption is that determination of the comparative characteristics of the product and the preference of consumers on the market (in this case on geotextile example) should influence business decisions. In this regard, a "proposal of the operational steps of a simple market and product research methodology" has been devised for this paper for an existing product in the existing market. This should be a contribution to the development of a simple market research methodology i.e. to contribute to the establishment of rules and procedures for business operations based on marketing management. The company's business success stems from the quantity and quality of the application of basic management and marketing principles, as well as the carefully thoughtful marketing performance on domestic and/or foreign markets. Obviously, the role of marketing approach is necessary. Although often mentioned, the concept of marketing as a business concept and business function is not sufficiently applied, is not applied adequately, or is not in use at all in the Republic of Croatia. These facts were also pointed out by the study "Strategic determinants of the development of textile and clothing industry in Croatia for the period 2006 to 2015" (Teodorović, et al., 2007) and the Industrial Strategy of the Republic of Croatia 2014-2020 (MINGO RH, 2014). For the development of company competitiveness are necessary "greater investment in research and development, marketing, own brand and sales distribution network development”, says the strategy (MINGO RH, 2007: 154). A serious marketing concept implies a coherent business

policy. Therefore, business entities need to focus on a marketing concept that is not only about promotional activities, but also about conceptual planning and development of the overall business.

The question "How much domestic product is competitive on the domestic market?" points to many problems that faced underdeveloped, but still open, economies such as Croatia - primarily to protect their own production and product competitiveness from the aspect of quality, price, delivery, availability, etc. Sometimes we wonder is the perception of the quality and price of domestic products correct i.e. are they inferior or not to foreign competing products? This is why, on the example of geotextile, it had been tried to find out what represent a domestic product compared to foreign competing products. Can such a marketing approach really contribute to coherent business decision-making process and consequently protect domestic production?

To this purpose, this paper should point to the necessity of applying, at least simple methodology, to address the problem of market analysis and competitiveness. For the purposes of this paper were compared, as an example, six competing products of the business entities from the textile industry (on the supply side), and were analyzed buying criteria of business entities from the construction industry (on the demand side) essential from the point of view of buying decisions. The B2B relationship was explored i.e. which criteria is important when is to deciding on purchasing and which products are better. Through this confrontation (comparison), it was to be determined how much the domestic product is competitive on the domestic market compared to foreign competitors.

An example of geotextile was a matter of circumstance.

2. AIM, CONTRIBUTION, HYPOTHESIS AND STRUCTURE OF THE PAPER

The aim of this paper is to point out the need to align the process of making business decisions with the determined characteristics of product competitiveness and determined consumer preferences, based on simple market and product research.

The contribution of this paper is a simple operational procedure to determine the competitiveness of the product in the market on the example of geotextile. It is about setting up a system of simple rules and procedures for marketing management of business functions, i.e. setting up of certain simple methodological procedures, for protection the business of the company. For that purpose, "proposal of the operational steps of a simple market and product research methodology" for an existing product in the existing market, has been devised for this paper. This is both, the practical and theoretical contribution of this paper.

The structure of this paper is set out as an example of applying a "proposal" based on which companies should act to determine market competitiveness of products and consumer preferences. For these reasons three (3) hypotheses H1 - H3 have been set:

- H1 - the quality of the domestic product is equal to or is approximately equivalent to imported foreign competing products
- H2 - consumer preferences are focused on price
- H3 - consumers are not sufficiently aware of the need and necessity to protect domestic products

The assumption is that the proposed market and product market research methodology allows the hypothesis to be verified i.e. correlates with hypotheses H1 to H3.

Operational steps, based on management and marketing principles for an existing product on an existing market, as mentioned before are referred to in this paper as a "proposal of the operational steps of a simple market and product research methodology" for an existing product in the existing market.

The proposal, based on cause and effect analysis, deduction, induction and empiry, implies the following steps:

1. (Step 1) to determine the criteria for the selection of competing products
2. (Step 2) to identify at least two (2) domestic and at least four (4) foreign geotextile producers present on the Croatian materials market with approximately the same parameters
3. (Step 3) to determine the wholesale prices on the Croatian market for the selected products
4. (Step 4) to determine standards and criteria for qualitative comparative analysis of materials
5. (Step 5) to determine the quality of selected products according to selected criteria
6. (Step 6) to determine the consumer preferences criteria when deciding on a purchase
7. (Step 7) conduct a survey among actual consumers / geotextile users
8. (Step 8) analysis of the results
9. (Step 9) conclusion.

3. METHODOLOGY

For the purpose of this paper, consumer preference research and material testing were carried out. It was done for the purpose of determining the most important product selection criteria (buying criteria) and the comparative determination of the quality of the selected products. The phases in which the research was conducted are as follows:

(1) Identifying the operational steps named as the "proposal of the operational steps of a simple market and product research methodology" for an existing product in the existing market (2) market

and price analysis (3) sample selection (4) sample testing (5) making of and pre-testing the questionnaire survey (6) collecting survey responses (7) data entry and data processing.

The survey questionnaire consists of issues relevant to determining consumer preferences in the B2B domain i.e. business customers, which issues gather data relevant for the ranking of product selection criteria. During the sample testing phase available materials on the Croatian materials market were used. The surface mass of the material, the thickness of the product, the breaking forces (tensile strength) F (md) and F (cd), and the stretching forces (tensile elongation at break) ε (md) and ε (cd) were tested.

During the phase of the survey questionnaire design, the pre-testing of survey questionnaire were done. After using it on a small sample, the questionnaire was improved and adapted, because it was shortened and simplified. After the improvement, the duration of the survey was reduced to only 5 minutes per respondent. In the next phase, was conducted a telephone survey. Questionnaire with eight (8) questions about priority buying criteria for geotextile consumers (such as price, quality, payment terms and conditions, etc.) was used, as shown in Table 8. The survey was conducted on a randomly selected sample of 70 construction companies (n = 70), which is approximately 0.5% sample of total population. At the beginning of each survey, it was verified whether the company used the geotextile for its business operation. The survey was addressed to 117 construction companies in Croatia. Collecting survey responses, 70 responses were actually obtained. The basis of sample selection was the database of business entities of the Republic of Croatia. The sample can not be considered representative, but selected one, because construction companies that have refused to take part in the survey because of business secrecy have been excluded. All the companies that participated in the research were aware of the fact that the survey was a secret and that their answers would be used solely for the purposes of this research. After the survey was conducted, the data collected from the questionnaire was entered in the Excel table and then statistical analyzes were performed on the computer using the Microsoft Excel program.

The statistical analysis methods used here were:

a) descriptive methods (tabular and graphical representation of data, percentages, mean values, dispersion measures) and

b) inferential methods (t-test differences in arithmetic means for small independent samples).

When selected the method of statistical analysis, it was considered that the simplest statistical methods are using in Croatian business practice, so the above methods were used in this research.

Conclusions regarding differences and correlations among variables were made at the usual 0.05 statistical level of significance ie with reliability of 95%.

4. PREVIOUS RESEARCH

There are two functions of a literature review. One, to provide a theoretical background of paper and two, to enable to contextualize findings in relation to the existing knowledge (Kumar, 2011). In order to ensure these two functions the literature review was done. In addition, „Market research is the vital link between the organization and its customers. The objective of sound market research is to interpret consumer behavior and translate the perspective of key customers into actionable marketing strategies" (Young, Javalgi, 2007:114). Therefore, „the goal of doing market research is to equip yourself with the information you need to make business"(CBNSC , 2018).

Numerous papers on subject of market research and analysis (Naresha, 2002, Shukla, 2008, Defense Standardization Program Office, 2008, Kumar, 2011, Market Research Process, 2019) cover a very similar market research methodology. Similar approaches can also be noticed by the other authors, such as Aaker, Kumar, Day (1995), McDonald (2004), Siropolis (1995) Fry, Stoner, Hattwick (2001) and Thompson, Strickland (2001). On the other hand, there are many different approaches to market and product research depends on the goal they need to achieve. Only several, with similar goals with this paper, have been isolated for the purpose of this paper.

In Guide to market research and analysis (CBNSC, 2018), understanding of customers and their preferences, recognition and planning for industry and economic shifts, monitoring the competition on the market and mitigate the risk in business decisions, are the recommendations for market research. This is obviously important, because in Choosing the right type of Market Research (Mora, 2015) understanding of customer's opinions is crucial, both to product competitiveness and to marketing decision process. Also, according to same source, successful product testing should comprise, among others, determination of competitive advantage as well as possible threats from similar products/services, pinpointing of product features (both existing and potential) most important to the target audience and help in production of marketing messages to change or enhance existing perceptions about existing products or services.

„Understanding customers' key buying criteria is vital to having a competitive edge" (Campbell, 2016). There are numerus of possibilities how to make choice between different criteria. Price, quality, loyalty, distance of warehouse, working hours, staff, purchase time, speed and time delivery, paper works, previous satisfaction, effectiveness, promotion activities, product origin (foreign, domestic or precise country), range of products, service, method and terms of payment, scale, etc. For example, Kita et.al. (2017) and REDF (2019) in their researches were extracted six different factors each, of consumer preferences. Suwannaporn and Linnemann (2008) in their research about buying decision criteria yielded four factors: marketing activities (explained variance 26.8%), quality (13%), price (10.5%), and country of origin (7.7%).

The “only way you will really know about your market's buying criteria is to survey qualified people in your target audience” (McDuffee, 2017). Thus, for this paper a preliminary survey was conducted. (See Chapter Methodology).

5. MARKET AND PRICE ANALYSIS

The market and price analysis in this paper implies several different analyzes. The term "market" implies an existing market of materials defined as a geotextile, mass of 300 g / m² with similar characteristics. The domestics and foreign producers' supply were analyzed. Wholesale prices have been compared. On the ground of analysis, the relevant consumer preference criteria when deciding on purchasing (buying criteria) were defines. The results of survey determined consumer preferences based on selected preference criteria.

The criteria for the selection of competing products (*Step 1*) were determined following a conducted market analysis of the supply, by extracting domestic and foreign producers of geotextiles mass 300 g / m². The selection of competing products used acceptable criteria in terms of supply:

- presence on the existing Croatian market
- product availability
- fiber composition of product.

The original variety of material is manifested through the fiber composition of the material. Three materials with different characteristics were available on the market. Two non-woven and one woven geotextile:

- polyester (PES)
- polypropylene (PP)
- woven geotextile.

Woven geotextile was not taken into considered. Due to the fibre composition (geotextile mass 300 g / m²) and due to the minimum required number of manufacturers of non-woven geotextile (criterion for determining at least two (2) domestic and at least (4) foreign producers), selection criteria were met. Except the number of manufacturers of competing materials with approximately the same parameters, the criterion involve producers presence on the Croatian materials market. (*Step 2*) The results of selection are shown in Table 1.

Table 1: Selected Manufacturers by Default Criteria

No.	PES (polyester)	No.	PP (polypropylene)
1.	GEOTEKSTIL GEO RPES AG	4.	TECNODREN 300g, OVATTIFICIO

	300, Geo&Tex 2000 S.p.A, Italy		ALPINO SRL, Italy
2.	FILTER PLASTICA 300G, TEKSTIL LIO d.o.o., Croatia	5.	CESTOTEX 300G, REGENERACIJA d.d., Croatia
3.	GEOTEKSTIL 300g, FILC d.d. Slovenia	6.	DREFON S 300, MANIFATTURA FINTANA S.p.A., Italy

The next step was to determine the wholesale market prices for the selected products on the Croatian market (*Step 3*). The prices are shown in Table 2.

Table 2: Retail prices by manufacturers

No.	Product	Retail price in kunas per m2 in bale
1.	GEOTEKSTIL GEO RPES AG 300, Geo&Tex 2000 S.p.A, Italy	6,78
2.	FILTER PLASTICA 300G, TEKSTIL LIO d.o.o., Croatia	5,98
3.	GEOTEKSTIL 300g, FILC d.d. Slovenia	5,85
4.	TECNODREN 300g, OVATTIFICIO ALPINO SRL, Italy	5,60
5.	CESTOTEX 300G, REGENERACIJA d.d., Croatia	7,50
6.	DREFON S 300, MANIFATTURA FINTANA S.p.A., Italy	7,44

6. QUALITATIVE ANALYSIS OF SELECTED MATERIALS

For the qualitative comparative analysis of selected materials, it was necessary to determine standards (norms) and criteria (Step 4) on which it was possible to determine the qualitative difference between the selected materials. Based on the empirical guidelines of textile science and economy, the following criteria were selected:

- surface mass of the materials
- thickness measurement of the flat side of the products
- breaking forces - tensile strength F (md) and F (cd), and the stretching forces - tensile elongation at break ε (md) and ε (cd)

Considering the selected criteria, the norms were defined. Testing of surface mass of material was done according to HRN EN 29073-1 Textile - Testing Methods for nonwovens - Part 1: Determination of mass per unit area ISO 9073–1:1989; EN 29073– 1:1992. When measuring, for objective reasons, the norm was applied in a modified way: the test tubes were 6 cm radius or 113,09 cm2. Based on this mass, the mass value for 1m2 of material was converted. Testing of the thickness of the flat product was carried out according to HRN EN ISO 9073-2 Textile - Testing Methods for nonwovens - Part 2: Determination of thickness ISO 9073–2:1995; EN ISO 9073–2:1996, using thickness meter with a scale precision of 0,01mm. The distance between the appropriately positioned substrate and the pressing device was measured. Pressure on material during testing was 10 g / cm2. Important criteria – determination of tensile strength and tensile elongation at break was carried out according to norm HRN EN 29073–3 Textile - Testing Methods for nonwovens - Part 3: Determination of tensile strength and tensile elongation at break ISO 9073–3:1989; EN 29073–3:1992. The instrument used for testing was a dynamometer for narrow strips.

7. RESULTS

Comparison of the quality of selected products according to the selected criteria (Step 5) was performed in accordance with the established criteria and the standards of qualitative comparative analysis of the material and the following results were obtained:

- Testing results of surface mass of selected materials - non-woven geotextiles with officially declared mass of 300 g / m2 - See Table 3.
- Testing results for actually determined mass - See Table 4.
- Results of the determination of the thickness of non-woven geotextile 300 g / m2 - See Table 5.
- Test results of the important criterion for tensile strength and tensile elongation at break - See Table 6.

Table 3: Testing results of surface mass (in g) of non-woven geotex declared mass of 300 g per m2

Mass of sample surface 113,09 cm2

	1PES	**2PES**	**3PES**	**4PP**	**5PP**	**6PP**
1	3,2321	3,3413	3,7040	3,4738	3,2425	3,3816
2	3,4239	3,6050	3,4104	3,5690	3,5713	3,2072

3	3,3631	3,1399	3,1314	3,5370	3,2309	3,6579
4	3,2789	3,2539	3,5422	3,3903	4,0942	3,5855
5	3,0408	3,1466	3,1660	3,2598	4,1107	3,5517
6	3,1963	3,1648	3,1876	3,5703	3,8805	3,6336
7	3,0899	3,6124	3,4136	3,3973	3,1069	3,2716
8	3,3926	3,4921	3,1133	3,5890	3,2424	3,3439
9	3,5042	3,4247	3,1219	3,4772	3,3038	3,2278
10	3,6142	3,8059	3,4420	3,5589	3,6590	3,6943
$\bar{x}$	3,3136	3,3987	3,3232	3,4823	3,5442	3,4555
min.	3,0408	3,1399	3,1133	3,2598	3,1069	3,2072
max.	3,6142	3,8059	3,704	3,589	4,1107	3,6943
σ	0,1806	0,2292	0,2075	0,1058	0,3771	0,1889
V[%]	5,45	6,74	6,24	3,04	10,64	5,46

Meaning of symbols in table:
[g] = mean value; min. [g] = minimum value; max. [g] = maximum value; σ[g] = standard deviation and V[%] = coefficient of variation (σ/ x 100)

In order to find out, how significant is the difference in results of the selected sample mass for different materials, a standard t-test for 2 samples was used. The t-test formula is given by the relation (1). The meanings of the symbols are: 1 = mean value, n1 = number of measurements, s12 = variance (standard deviation square) - for one sample. Analogously the values are defined: 2 , n2 , s22 for the second sample.

$$t = \frac{\overline{x_1} - \overline{x_2}}{\sqrt{\frac{S_1^2}{N_1} + \frac{S_2^2}{N_2}}}$$

(1)

For the first three products t-test shows no significant difference. Using this statistical method on samples 1PES and 2PES is obtained for t-value: t = 0.924.The critical t-value is tc = 2.1 (with ◎-factor = 0.05 and number of degrees of freedom = 18). As t<tc, it is concluded that there is no statistically significant difference between the results for 1PES and 2PES. It can be seen from Table 3, that the difference between samples 2PES and 3PES is even smaller than the previous one, so neither it can be significant. With this compare, the results of domestic product 2PES against foreign products 1PES and 3PES, show no difference in quality.

With analogue method, the samples 5PP (domestic) and 6PP (foreign) were compared. It is obtained: t = 0.665 and tc = 2.1. Thus: t < tC implies that there is no statistically significant difference between these two samples. As the difference between 5PP and 4PP is even smaller (as can be seen in the Table 3), it is concluded that neither the difference between these two samples is significant. With this compare, the results of domestic product 5PP against foreign products 4PP and 6PP, also show no difference in quality.

The accuracy of the measurements expressed by the coefficient of variation shows that there are no significant differences in PES (polyester) measurements (all are less than 10%). Among coefficients of variation for PP (polypropylene) materials, a greater discrepancy (10.64%) occurred for domestic 5PP material. However, this difference is negligible.

In Table 4, actual surface masses of PES and PP have been calculated in grams per square meter, as they are declared in the retail at 300 g / m2.

Table 4: The results of calculation of the actual surface mass of g/m²

Surface mass per material (g/m²) and standard deviation per m²

	1PES	**2PES**	**3PES**	**4PP**	**5PP**	**6PP**
$\overline{x}$	*293,00*	*300,53*	*293,85*	*307,92*	*313,39*	*305,55*
s	15,97	20,27	18,35	9,35	33,35	16,70
V[%]	5,45	6,74	6,24	3,04	10,64	5,46

The results for the thickness measurement of the flat side of the products, are given in Table 5. They are also compared with the t-test, analogously as described above. Using T-test on samples 1PES and 2PES, is obtained for t-value: t = 9.94, and tc = 2.1. Therefore, by comparing values, t > tc implies that there is a statistically significant difference in the results of these two samples. Namely, 1PES is significantly thinner than 2PES.

Table 5: Testing results of thickness (in mm) of non-woven geotextiles declared mass of 300 g per m2

Thickness (mm)

	1PES	**2PES**	**3PES**	**4PP**	**5PP**	**6PP**
1	2,19	3,21	3,50	3,36	4,02	3,00
2	2,42	3,04	3,44	3,09	3,93	3,07
3	2,55	2,91	3,36	3,30	4,07	2,80
4	2,09	3,10	3,62	2,71	4,28	2,71
5	2,06	2,90	3,38	3,44	4,21	3,07

6	2,15	2,76	3,42	3,34	3,97	2,85
7	2,17	2,89	3,65	3,23	4,48	2,88
8	2,50	2,93	3,29	3,25	4,20	3,10
9	2,26	3,00	3,76	3,26	4,23	2,79
10	2,33	2,82	3,41	3,41	4,18	3,00
$\bar{x}$	2,27	2,96	3,48	3,24	4,16	2,93
min.	2,06	2,76	3,29	2,71	3,93	2,71
max.	2,55	3,21	3,76	3,44	4,48	3,10
σ	0,172	0,134	0,148	0,211	0,164	0,138
V[%]	7,57	4,52	4,25	6,51	3,94	4,71

Analogously to previous, 2PES and 3PES were compared. It was obtained: t = 8.34, tc = 2.1. We conclude, since the t > tc, that 2PES is statistically significantly thinner than 3PES. Therefore, the domestic material (2PES) is significantly thicker than the first foreign and significantly thinner than the second foreign material.

Furthermore, by comparing 5PP and 4PP it was obtained: t = 10.85> tc = 2.1, which implies that 5PP is significantly thicker than 4PP. From Table 5 it is clearly visible and/or understood that the product 6PP is even thinner than 4PP. The conclusion is therefore that the 5PP domestic product is significantly thicker than both foreign materials.

When considering breaking forces - tensile strength F(md) and F(cd) in Table 6, it is of interest to observe the difference between those two forces: ⌾F = F(md) – F(cd).

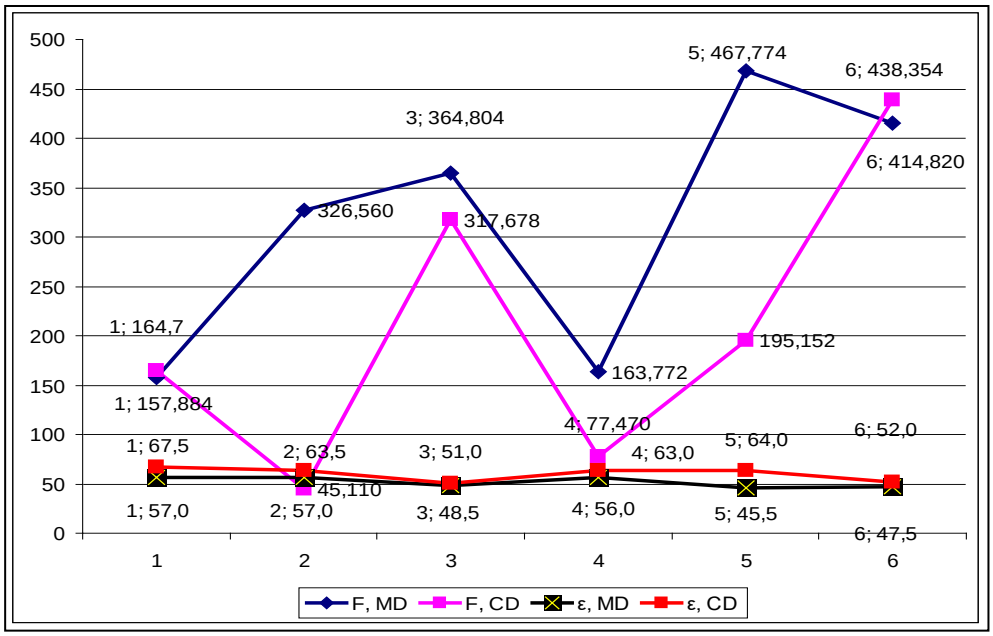
Table 6: Testing results for tensile strength and tensile elongation at break (numeric expression)

	F(md)		**F(cd)**	
	F[N]	ε [%]	**F[N]**	ε[%]
1PES	157,884	57,0	164,748	67,5
2PES	326,560	57,0	45,110	63,5
3PES	364,804	48,5	317,678	51,0
4PP	163,772	56,0	77,470	63,0
5PP	467,774	45,5	195,152	64,0
6PP	414,820	47,5	438,354	52,0

This is because the tensile strength in the direction of exit from the machine (machine direction) F (md) and the tensile strength in the cross direction F (cd), represent material strength in all directions.

This fact has a direct influence the quality of materials for the construction activity, which also affects the quality of the constructions/buildings itself.

Graph 1: Tensile strength F(md) and F(cd) and tensile elongation at break ε (md) and ε (cd)



For the testing of stretching forces - tensile elongation at break ε (md) and ε (cd) in Table 6 and Graph 1, stretching factor is defined as ⌾ = ⌾ l / l = (elongation of material) / (initial length of material), at the moment of break/interruption.

The differences between forces ⌾F [N] are shown in Table 7. The results are rounded, no decimal expressions. In this case, standard deviations are obtained by adding standard deviations for each force: ⌾ = ⌾ (md) + ⌾ (cd).

In addition, it can be seen from Table 7 that the difference between the breaking forces ⌾F - is significantly higher in the case of domestic materials, than in foreign materials. So, according to this criterion foreign materials are in the favor. (See Table 6 & 7 and Graph 1).

Table 7: Results of calculated difference between forces and standard deviation

	1PES	2PES	3PES	4PP	5PP	6PP
DF[N]	-7	281	47	86	273	-24
s [N]	82	52	68	45	147	99

8. DEFINING CONSUMER PREFERENCES

The process of determination of the consumer preferences criteria when deciding on a purchase ie buying criteria (Step 6) included activities with which these criteria were established. During the pre-testing phase of survey questionnaire, consumers were responded to questions from the draft questionnaire, on a small sample. Disadvantages were noted, and the questionnaire was improved in a way that it was shortened and the questions were simplified.

Eight (8) criteria were established: closeness of warehouse, time delivery, price, country of origin - domestic, quality, payment terms and conditions, country of origin - foreign and other criteria. In the next phase (Step 7), survey was conducted among actual consumers ie companies that use geotextile in their business. All received answers were processed - a total of 70 responses from 117 respondents. The results were systematized in Table 8.

Table 8: Importance of consumer preference when deciding on purchasing

CRITERIA	1	2	3	4	5	6	7	$\bar{x}$	RANG
Closeness of warehouse				3	11	36	20	6,04	6
Time delivery			15	25	24	3	3	4,34	4
Price	23	45	2					1,70	2
Country of origin - domestic		3	12	19	18	18		4,51	5
Quality	47	22	1					1,34	1
Payment terms and conditions			40	23	7			3,52	3
Country of origin - foreign					10	13	47	6,52	7
Other criteria	-	-	-	-	-	-	-	-	-

9. DISCUSSION

When analyzing the results of the this research (Steps 3 through 8), it is necessary to point out that they do not scientifically prove the set thesis, but only indicate whether the given data support or does not support hypotheses. From the presented results of the research, it is possible to determine the following facts:

- There is a large number of suppliers of non-woven geotextiles available in the market. The material can be grouped into three groups. Two of three were selected according to the material composition - polyester (PES) and polypropylene (PP)
- The price of geotextiles varies considerably due to the variety of supply on the market and strong competition, but from selected competing products, the range prices vary from 5.60 to 7.50 kunas per m^2 in bale
- when examining the quality of the material, the results of the research have shown that each of the selected criteria affects the final attitude regarding the quality of domestic materials:

    - the results of the surface mass test for PES have shown that there is no statistically significant difference between domestic and foreign materials => according to this criterion for PES materials, domestic product quality is similar to foreign materials
    - the results of surface mass test for PP also have showed that there is no statistically significant difference between domestic and foreign materials => by this criterion for PP materials, domestic product quality is similar to foreign materials
    - the actual surface mass (g/m^2) criterion shown in Table 4, indicates that the 5PP domestic manufacturer offers higher weight. According to the obtained sample, the manufacturer for the declared 300 g/m^2 offers 313.39 g/m^2. For 2PES, the manufacturer for declared 300 g/m^2 offer precise 300.53 g/m^2, calculated according to the given samples
    - the test results of material thickness for PES show that the domestic material (2PES) is significantly thicker than one foreign and significantly thinner than one foreign material
    - the test results of material thickness for PP, show that the domestic material (5PP) is considerably thicker than both foreign materials
    - the analysis of the breaking forces - tensile strength F(md) and F(cd) in Graph 1 and Table 7, clearly shows that there are significant differences in quality between domestic and foreign materials in favor of foreign ie for better material quality, the result of force difference $\circledcirc F$ = F(md) – F(cd) should strive to zero (0).

Determination of the customer preference criteria when deciding on purchasing (buying criteria), on a random sampling, reveals:

- Criterion „Quality“ has rank 1 (average rank =1.34) and is the most important factor when deciding on purchasing
- the „Price“ as a purchase decision criterion has a rank 2 (=1.70), a lower rank than the quality, but is more than twice as significant as the third criterion „Payment terms and conditions” with rank 3 (=3.52)
- It is surprising fact that the preference purchase decision criteria „Closeness of warehouse” (rank 6, =6.04) and „Country of origin – foreign” (rank 7, =6.52) are least important as purchase criteria

10. CONCLUSIONS

For the purpose of this paper was designed "proposal of the operational steps of a simple market and product research methodology", for the existing product in the existing market. This “simple products and market research methodology” should show how companies should access market and act on the market, in order to increase the selling efficiency of products in terms of detected market circumstances and comparative advantages. In addition, the assumption is that on the ground of this simple methodology the business decisions should be made. In this conclusion, according to the analysis of the results of this research, the results have to confront with the set hypotheses H1, H2 and H3:

H1 – the quality of the domestic product is equal to or is approximately equivalent to imported foreign competing products - the hypothesis is partly acceptable. According to certain criteria (material thickness and surface mass), domestic products meet these criteria, and they are even better. But, the most important criterion of breaking forces - tensile strength F (md) and F (cd) indicates a significant difference between the tensile strength in the direction of exit from the machine (machine direction) F (md) and the tensile strength in the cross direction F (cd). The result should strive to zero (0) to demonstrate the required material strength in all directions and thus the required quality. Selected samples of domestic materials are lagging behind that particular parameter because they do not meet the required condition and thus have reduced quality.

H2 – consumer preferences are focused on price - the thesis is partly acceptable. From the research results („Price“ as a purchase decision criterion has a rank 2, average rank $\bar{x}$ =1.70) it is obvious that the contractors are increasingly concerned with high quality materials („Quality“ has rank 1, average rank $\bar{x}$ =1.34). This attitude will enable them to perform contracts with quality work, regardless of the higher price of the material. Specifically, this criterion might be accurate according to the prices of competing materials (see Table 2), because their quality-well-done contracts provide new

contracts and further survival on the market, so the price does not play a decisive role, even though it affects on the gross margin.

H3 - consumers are not sufficiently aware of the need and necessity to protect domestic products – thesis is acceptable. According to the conducted survey, there are still other criteria such as Quality, Price, Payment terms and conditions, which are more important to them, in order to realize their entrusted work. However, it may be said that some minor number of contractors are in some way concerned with the protection of domestic products because “Country of origin – domestic” has rank 5, $\bar{x}$=4.51 and „Country of origin – foreign” has least important rank 7, $\bar{x}$=6.52.

According to the set hypotheses H1-H3, it is possible to conclude:

- that the competitiveness of the domestic product, on the example of geotextile, is not entirely satisfactory,
- that publicly-declared approach for deciding on purchasing of domestic origin of the product, is not present into that extent what would be expected considering promotional efforts "Buy Croatian"
- that the price (at least on the geotextile example) though, is not the most important factor when deciding on purchasing,
- „Quality“ with rank 1, average rank $\bar{x}$=1.34 and „Payment terms and conditions” with rank 3 ($\bar{x}$=3.52) have a significant place in decision making.

On the ground of basic assumption that the proposed methodology of market and product research correlates with hypotheses H1 to H3, the results of the research indicate the necessity of applying, even this simple, market and product research methodology. Analysis of the results has shown that it is necessary to compare products in the market and that consumer opinion and attitude research is important for business decisions. This is clear from the following arguments:

- Domestic product is necessary to qualitatively improve, at least to the level of foreign competing products
- Domestic origin of the product is not a crucial factor of purchase, regardless of other criteria
- Price is not always a crucial factor of purchasing, but it is quality
- All other factors mentioned above.

Finally, marketing approach has its justified purpose and meaning, and information’s gathered in this way, can contribute to meaningful business decisions that should follow after the analysis of the research results were obtained. By doing so, business entities could provide and / or improve their economic and competitive position in the market.

Further researches in this direction are recommended.

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