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STRATEGIC ANALYSIS OF THE INDUSTRY OF ROUTINE MAINTENANCE OF PUBLIC ROADS WITHOUT TOLL CHARGE (RMPRWTC) IN THE REPUBLIC OF CROATIA

STRATEŠKA ANALIZA GOSPODARSKE GRANE RUTINSKOG ODRŽAVANJA JAVNIH CESTA BEZ NAPLATE CESTARINE (ROJCBNC) U REPUBLICI HRVATSKOJ

ABSTRACT: Routine maintenance is comprised of a set of measures and actions which are performed on the roads, including all the structures and installations, throughout the year, with the purpose of maintaining road traversability, technical integrity and traffic safety.

The aims of this paper are to describe the economic characteristics and to define the boundaries of the industry RMPRWTC in Croatia, to analyze the industry structure using the five forces model, to define forces intensity, and to determine the key factors of success. The model pointed to some deficiencies due to the specificity of the industry, so the intensities of some forces acquired through empirical research deviated from their realistic values. The buyers loyalty expressed through the regulatory framework stands out as the main factor of a company's success.

KEY WORDS*:* routine roads maintenance, Porter's five forces model, strategic analysis.

SAŽETAK: Rutinsko održavanje sastoji se od niza mjera i djelovanja koje se izvode na cestama i uključuju sve strukture i instalacije tijekom cijele godine sa svrhom održavanja prohodnosti cesta, tehničkoga integriteta i sigurnosti prometa.

Cilj nam je opisati gospodarska obilježja i definirati granice gospodarske grane ROJCBNC u Hrvatskoj, analizirati strukturu gospodarske grane koristeći se modelom pet sila, odrediti intenzitet sila i odrediti ključne čimbenike uspjeha. Model ukazuje na neke nedostatke koji proizlaze iz specifičnih obilježja gospodarske grane pa se intenziteti nekih sila dobivenih empirijskim istraživanjem otklanjaju od njihovih realnih vrijednosti. Odanost kupaca koja je izražena kroz regulativni okvir ističe se kao glavni čimbenik uspješnosti tvrtke.

KLJUČNE RIJEČI: rutinsko održavanje cesta, Porterov model pet sila, strateška analiza.

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1. INTRODUCTION

This intensely regulated and, to the general public, relatively unknown industry is mostly perceived negatively and is associated with the traffic jams during the summer months. It falls under public scrutiny with the arrival of winter, when the snow needs to be removed and traffic mobility and safety ensured across the complete road network.

Public roads are public goods and general property of the Republic of Croatia and the road infrastructure is considered as one of the most valuable goods in any society. The road network of national, county and local roads is comprised of around 25,000 km of roads (The Ministry of Maritime Affairs, Transport and Infrastructure, 2015) which connect Croatia completely, enabling most of the traffic in the country. Many human needs, such as casual trips and transport of goods, can be fulfilled simply by using the roads. Zelenika and Pupovac (2000) emphasize the significant influence transport has on all sectors of the economy as it breaks the vicious circle of underdevelopment in certain transitional countries. During 2013, there were 54,292,000 passengers and 67,500,000 tons of different goods transported on Croatian roads (National Bureau of Statistic, 2014). The road traffic in Croatia (primarily individual) is also functioning as the backbone of traffic in the service of tourism (Šolman, 2010). In the last twenty years, the investments in maintenance, reconstruction and modernization of worldwide road network have been larger than the investments in the construction of new roads (Radović, Šešlija & Peško, 2013). Smaller investments in road maintenance increase the cost of transport and the net cost for the economy as a whole; a dollar that is not invested in road maintenance surely increases the operational cost of vehicles by 2 to 3 dollars (Ibid.). Since Croatia's road system is of immense national value, a significant percentage of financial means should be allocated for road maintenance in the future (Horvat, Vurdelja & Amidžić, 2007). A road has always been a symbol of life. Therefore, apart from ensuring traffic safety, this industry also supports life itself. With sufficient investment in routine maintenance the future public expenditures are lowered, transport costs are being minimized, and the efficient and sustainable traffic system, which is of extreme importance for the safety of its users, is ensured. An efficient routine maintenance system is a primary goal which considerably contributes to traffic safety.

Long term economic recession led to a sharp decline of the industry, especially the construction sector. Its effects were particularly strongly felt by companies focused on civil engineering, and road and highway construction. According to Butković and Mišić (2014), contribution of the construction industry to GDP decreased from 7.8% in 2008 to 4.4% in 2013. Due to the lack of big investments, both private and public, and the consequential decrease in the volume of construction work, routine maintenance is slowly attracting the attention of the construction industry players. The main goal of this paper is to present the key success factors of routine maintenance of public roads without toll charge (RMPRWTC) in the Republic of Croatia and its importance.

We aims to describe the economic characteristics and to define the boundaries of the industry of RMPRWTC in Croatia, to analyze the industry structure using the five forces model, to define forces intensity, and to determine the key factors of success.

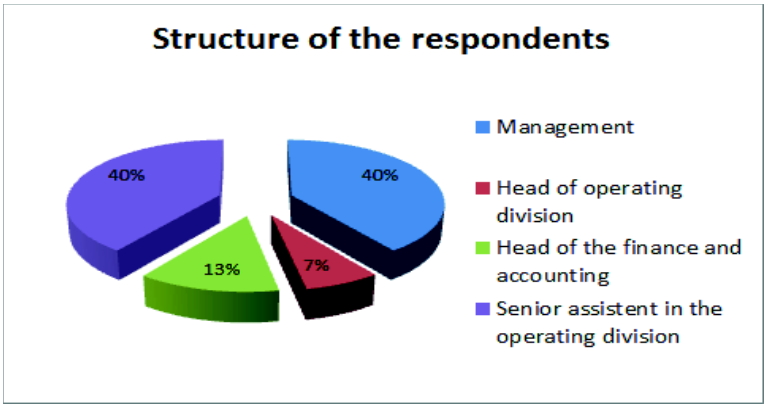
A review of the literature shows that this industry has not been adequately analyzed as yet. However, there are papers on the theoretical framework and its application to other industries (Porter, 1979, 1998, 2008; Powell, 1996; Thurlby, 1998; Andriotis, 2004; Grundy,

2006; Butigan, 2008; Grant, 2010; Renko, Sustic, Butigan, 2011; Dulčić, Gnjidić, Alfirević, 2012; Daraboš, 2013). Therefore, the originality and theoretical contribution of this paper lies in the application of this model to the industry of RMPRWTC in Croatia.

2. METHODOLOGY

The five competitive forces model is a standard tool for industry analysis with a significant impact on strategic management (Lee, Kim & Park, 2012). Consequently, we use it to analyze RMPRWTC in Croatia.

The methodology is based on secondary and primary research. Secondary research enabled us to gather data from the scientific and professional literature available at the Faculty of Economics and Business and the Faculty of Civil Engineering in Zagreb, in scientific articles, internet databases, legal acts, internal documents of the economic interest grouping *Hrvatski cestar* and financial reports published by all the competitors in the industry. The primary data were obtained through a descriptive research survey based on the Industruct questionnaire developed by Anthony Pecotich, an Australian professor, (Pecotich, Hattie & Low, 1999) and adapted for this industry by the author. The questionnaire contains 52 statements that were grouped into five categories, each representing one competitive force. The respondents rated each statement on the 5-point Likert scale, thus specifying their perception of the intensity of competitive forces. The research was done in July 2014. The survey was completed by a total of 15 out of 17 respondents (return rate 88.23%). The data were collected from an intentional sample of experts from companies operating within this industry. Six respondents (40%) were either members of the management board or CEOs and senior assistants in the Technical (Operating) Department. Two of the respondents (13%) were Heads of the Department of Finance and Accounting, while one respondent (7%) was the Head of the Technical Department.



Picture 1: Structure of the respondents

Source: Author

3. ECONOMIC CHARACTERISTICS AND INDUSTRY BOUNDARIES

3.1. Defining the industry boundaries

When defining an industry it is necessary to draw the line between established competitors and substitute products, between existing firms and potential entrants, and between existing firms and suppliers and buyers (Porter 1998, p. 32). Grant (2010, p. 86) emphasizes that industry definition is not critical for carrying out the analysis using the Porter's model as the model includes forces outside the industry in question. According to Stacey (1997, p. 54), the market is defined by the interaction between groups of consumers and competitors. Consumers have similar demands for goods and services while competitors compete to meet those demands. The similarity of demands and the closeness of competition define industry boundaries.

Public roads maintenance is divided as follows: routine maintenance and major maintenance (rehabilitation and modernization). Rather than to repair roads, routine maintenance is performed all year round to stop road deterioration and degradation, while major maintenance is periodical and used to improve road elements in certain places and increase traffic safety.

The use of public roads in Croatia is charged as an annual fee, while the use of motorway incurs an additional road toll (National gazette, 2013). Even though the Roads Act defines the state roads and motorways as one technical and technological complex, the maintenance of state, county and local roads share a number of common features: similarity of consumers and closeness of competition. Therefore, for the purposes of this paper, state, county and local roads are grouped under one common title: public roads without toll charge. This defines the industry boundaries.

3.2. Economic characteristics and market structure

Presently, there are 17 companies on the market in Croatia. The activity of routine maintenance is the primary business for 14 of these companies, while the primary business for the remaining 3 is the construction of civil engineering objects, primarily roads. These are mainly small and medium-sized companies, mostly privately-owned and funded with domestic capital.

According to the number of employees in 2009, 11 companies (64.71%) were medium-sized, while 6 (35.29%) belonged to the group of large companies. In the period from 2010 to 2013, based on the revenue, there were 13 (76.47%) medium-sized and 4 (23.53%) large companies.

Based on the revenue, the companies were divided into small and medium-sized enterprises. The largest number of small enterprises was recorded in 2009 (8 companies, 47.06%), whereas the smallest number was recorded in 2012 (5 companies, 29.41%). According to the revenue, the number of medium-sized enterprises was the largest in 2012 (12 or 70.59%) and the smallest in 2010 (8 or 47.06%).

The size of a company's assets also defines the company as a small or medium-sized. In the observed period, only 2 (11.76%) of the enterprises could be regarded as small en-

terprises. The number of small enterprises increased only once, in 2010 when there were 3 (17.65%) of them. The number of medium-sized enterprises in the same period mostly stood at 15 (88.24%), with the exception of 2010, when there were 14 (82.35%) medium-sized enterprises.

Four companies (18.75%) were 100% privately-owned businesses, while 9 companies (56.25%) were mostly privately-owned (more than 50%). Four companies (25%) were mostly state- and county-owned. Fifteen companies (87.50%) were based entirely on domestic capital, whereas one company (6.25%) was based entirely on foreign capital and one company (6.25%) on more than 50% of foreign capital.

The analysis of the size of the companies, based on their number of employees, revenues and assets in the observed period, showed that the companies operating within the industry have not changed significantly, which proves the stability of the industry structure.

The companies are geographically located to cover the entire area of Croatia and they mostly operate on the territory of one to two counties. The export potential is low and limited to companies whose maintenance area is bordering neighboring countries. The export potential is mostly related to construction services and manufacturing and sales of stone aggregates and bitumen mixes.

The RMPRWTC market is "worth" between 714,130,260.13 HRK and 788,952,473.00 HRK annually. The number of employees in the observed five-year period has decreased from 3,395 to 3,053 employees, while the total productivity and the productivity of routine maintenance, measured by the income per employee, has increased by 22.93 % and 16.33 % respectively. The average net salary has increased from 4,995.00 HRK to 5,126.00 HRK in the same period.

It is visible from Table 1 that there are no dominant companies in this oligopolistic market and that the bigger market shares go to the companies which are active in larger urban areas or maintain roads in several counties. The analysis of industry concentration shows that the Herfindal-Hirshman index in the observed period is less than 1000, which shows that the industry is fragmented. It should be noted that there are several cooption strategic alliances in existence, which drastically changes the industry structure. The largest is between fourteen companies (Ceste Bjelovar, Dubrovnik ceste, Istarske ceste, Ceste Karlovac, Lika ceste, Ceste Rijeka, Ceste Sisak, PZC Slavonski Brod, Županijske ceste Split, Ceste Šibenik, PZC Varaždin, Ceste Zadarske županije, Županijske ceste Zagrebačke županije) which operate nationwide.

Smaller strategic alliances are present in maintenance of county and local roads in the Brodsko-Posavska (PZC Slavonski Brod and Cestar), Međimurska (Tegra i Pavlic-Asfalt-Beton), and, since 2014, in Osječko-Baranjska and Vukovarsko-Srijemska counties (Cesting and Cestar).

Table 1: Market shares and Herfindahl-Hirshman index

COMPANY	MARKET SHARE	SQUARED MARKET SHARE	MARKET SHARE	SQUARED MARKET SHARE	MARKET SHARE	SQUARED MARKET SHARE	MARKET SHARE	SQUARED MARKET SHARE	MARKET SHARE	SQUARED MARKET SHARE	MARKET SHARE	SQUARED MARKET SHARE
	2009.		2010.		2011.		2012.		2013.		2009. - 2013.	
CESTE d.d. BJELOVAR	8,62	74,35	9,48	89,88	11,30	127,69	9,42	88,66	9,85	97,07	9,31	86,68
DUBROVNIK CESTE d.d.	3,08	9,46	3,51	12,35	3,65	13,30	3,88	15,04	4,58	21,00	3,86	14,90
ISTARSKE CESTE d.o.o.	6,28	39,49	6,45	41,66	6,35	40,28	6,44	41,52	6,32	39,94	6,35	40,32
CESTE KARLOVAC d.d.	4,68	21,87	4,62	21,36	4,42	19,53	4,98	24,80	4,77	22,78	4,82	23,23
LIKA CESTE d.o.o.	5,56	30,92	6,10	37,22	5,37	28,88	5,86	34,37	5,56	30,89	5,67	32,15
CESTING d.o.o.	9,69	93,93	10,07	101,31	10,41	108,44	11,38	129,52	11,13	123,98	10,76	115,78
CESTE RIJEKA d.o.o.	7,91	62,52	8,63	74,56	7,27	52,88	8,20	67,31	7,73	59,70	7,95	63,20
CESTE SISAK d.o.o.	5,65	31,91	6,80	46,23	6,54	42,72	6,77	45,88	5,07	25,73	5,85	34,22
CESTE d.d. ili PZC d.o.o. SL. BROD	5,82	33,83	2,80	7,82	1,39	1,93	1,73	2,99	1,97	3,87	3,11	9,67
ŽUPANIJSKE CESTE SPLIT d.o.o.	8,96	80,32	8,93	79,83	9,42	88,71	9,56	91,32	9,77	95,53	9,44	89,11
CESTE ŠIBENIK d.o.o.	3,06	9,39	3,21	10,30	3,28	10,73	3,58	12,79	3,55	12,62	3,41	11,63
PZC VARAŽDIN d.d.	8,54	72,99	9,24	85,35	9,71	94,31	8,36	69,88	7,65	58,52	8,18	66,91
CESTE ZADARSKE ŽUPANIJE d.o.o.	7,04	49,50	6,53	42,66	7,46	55,69	7,85	61,57	8,20	67,30	7,71	59,44
ŽUPANIJSKE CESTE ZAG. ŽUP. d.o.o.	12,76	162,82	11,38	129,61	11,21	125,71	9,87	97,33	11,59	134,27	11,36	129,05
TEGRA d.o.o.	0,68	0,46	0,65	0,42	0,64	0,41	0,62	0,38	0,65	0,42	0,65	0,42
PAVLIC-ASFALT-BETON d.o.o	0,68	0,46	0,65	0,42	0,64	0,41	0,62	0,38	0,65	0,42	0,65	0,42
CESTAR d.o.o.	0,99	0,98	0,94	0,88	0,93	0,87	0,89	0,80	0,94	0,89	0,94	0,88
	HHI 2009	**775,20**	**HHI 2010**	**781,86**	**HHI 2011**	**812,51**	**HHI 2012**	**784,54**	**HHI 2013**	**794,94**	**HHI 2009 - 13**	**778,03**

Source: Author

4. COMPETITIVE FORCES ANALYSIS

The five competitive forces model was developed by Michael E. Porter in the second half of the 20th century. It is used to assess the attractiveness of the business the company is in, or aims to enter, and helps with the strategic analysis of direct and potential competition (Tipurić, 2014, p. 173). It relates a company to its environment and the key aspect of the company's environment is the industry or industries in which it is competing (Teece, Pisano, Shuen, 1997). It is derived from a structural approach to strategy and the S-C-P (Structure – Conduct – Performance) paradigm which was developed by Mason and Bain (Weiss, 1979, Powell 1996). "Structure" refers to the structure of the industry, determined by factors such as the number of competitors in the industry, concentration of customers, product differentiation, and barriers to entry and exit from the industry. "Conduct" implies the activities of a company within the industry towards buyers, suppliers and competitors, including the policy of pricing, product characteristics and other influences on market transactions (Delrome Jr., Kamershen et al, 2002). "Performance" refers to profitability and technological progress and is determined by the conduct of companies which in turn is determined by structural characteristics of the market (Clark, 1993). SCP paradigm indicates that markets closer to perfect competition are better at satisfying consumer requirements, while an increase in the average size and the number of companies threatens their position.

Despite a large number of short term influences concerning the profitability and the attractiveness of the industry, this model's hypothesis is that in the longer period it mostly depends on the structure itself and the influence of other factors: 1) the intensity of the

competition between the companies in the observed industry, 2) threat of potential competitors – new entrants, 3) threat of substitutes, 4) buyer's bargaining power and 5) suppliers' bargaining power (Porter, 2008). If the companies are more efficient than the competitive forces, and more successful in offering their product and attracting the buyers, they achieve a competitive advantage (Buble et al. 2005, p. 144). The level of actions and interactions of these forces defines the industry profitability and the differences in the profitability among industries. Industries with an unstable and undefined structure, where suppliers, buyers and substitute products are in a better position, and where there is a significant threat of new entrants, are characterized by smaller profitability. The profitability is higher among industries with a stable competitive structure, an unfavorable position of suppliers, buyers and alternative industries, and those with a smaller threat of new entrants (Tipurić, 2014, p. 172).

Porter's five forces model has been criticized on two bases, theoretical foundations and empirical weaknesses (Grant, 2010, p. 96). Grant (2010, p. 97) also stresses the importance of complements to most products, arguing that it should be taken into account as a sixth force to the model. In Grundy's opinion (2006), the model oversimplifies industry value chains: for example, invariably 'buyers' may need to be both segmented and also differentiated between channels, intermediate buyers and end consumers. He also stresses that five forces are highly interdependent. Vining, Shapiro & Borges, (2003) emphasize that government policy has more influence on firm profit than other competitive forces and that should be also added into the model as a sixth force. Porter's model is static and ignores time, (Andriotis, 2004; Thurlby, 1998), so the dimension of time dynamics should be brought into the model to get a clear insight into the existence and nature of past, present and future interaction between a firm and its industry environment (Dulčić, Gnjidić & Alfirević, 2012). The model is further criticized for not considering the collaborative interrelationship between a firm and industry determinants through strategic alliances, joint-ventures, etc. (Dyer & Singh, 1998).

4.1. Rivalry among existing competitors

The rivalry among competitors is usually the most intense force in the model. Its increase leads to battles for the acquisition of a bigger market share, which manifests itself in lower prices of products and services and a decreased profit potential of the industry.

Porter (2008) points out that rivalry can cause an increase in average profitability and industry growth if every competitor services the needs of a different segment with a different approach to the market (price, brand services).

Competitors are mostly companies of similar size, offering mutually undifferentiated products and services, heavily dependent on the industry which is itself of a seasonal nature. Since there is no dominant company, one would expect to see a market-share battle. But that scenario has not unfolded because most of the companies, except Tegra, Pavlic-Asfalt - Beton and Cestar, are joined in a strategic alliance on a state roads level, and some of them also on a county and local roads level (PZC Sl. Brod and Cestar, Tegra and Pavlic-Asfalt-Beton) (Economic interest grouping *Hrvatski Cestar*, internal documents). The majority of the companies share a common history where they used to be a part of a public company and used to occupy the same territory and maintain the same roads they do now. Apart from the common history and strategic alliance, the existing competitors refrain from attacks since they are keenly aware that retaliation is possible. If only one of

the competitors grew, a chain reaction would destroy the profit potential of the industry. Each company has invested large sums in specialized machinery, which has created big exit barriers and made exiting the industry difficult.

All these factors influence the preservation of the "status quo".

4.2. Buyers' bargaining power

The buyers try to use their bargaining power to achieve lower prices, better payment conditions, and higher quality for the same prices. Doing so, they lower the long term profit potential of the industry by transferring it towards themselves (Porter, 1979). According to Grant (2010, p. 76), buyers' purchasing power depends on their price sensitivity and their relative bargaining power. The buyers, who are also the regulators of this market, own shares in most companies in ranges from 10% to 100% (Economic interest grouping *Hrvatski cestar*, internal documents) and significantly affect the market by enforcing their standards and demands. The probability of further downstream vertical integration by the buyers is not high, and the costs of changing the suppliers are not small.

4.3. Threat of new entrants

Aspirants are companies that enter a market and lower the market shares of existing competitors. Thus they increase the pressure on the prices and cause battles which lower the industry's profitability. Political factors and legal regulations are the most significant entrance barrier to the industry.

The current tendering process (state roads as a whole, and county roads and local roads in their counties) and terms imparted by road authorities ensure an advantage to the existing competitors. Simultaneous maintenance of state, county and local roads is partially ensuring the economies of scale for the existing companies and setting high barriers to entry for potential new entrants. Given that road authorities do not have a fixed schedule for contracting work, new entrants in any area would cause a significant reaction from the existing companies in other areas, which would primarily result in lower prices.

The seasonal nature of the business and the great peak load for specific equipment (April, May and June), followed by sudden drops (July and August) and great need for manual labor which is not specific for construction companies working in road construction, pose an additional barrier for new entrants. By differentiating their products, especially by maintaining road traversability and safety in winter conditions, the existing companies have achieved a high level of recognizability of their services. Buyer's costs of changing a supplier are not small, but they could be disastrous if new entrants prove incapable of fulfilling their buyer's demands with satisfactory quality. The existing companies have favorable locations which give them competitive advantage and, utilizing their strategic alliance, they own a distribution channel which covers the entire Croatian territory. Slow and limited industrial growth is another obstacle to new entrants. The companies located in close proximity to large cities have a higher possibility of business diversification and are not greatly dependent on the revenues earned in RMPRWTC industry. Consequently, the threat of new entrants is lower for them.

4.4. Suppliers' bargaining power

The fourth Porter's force which affects the long term profitability of the industry is the suppliers' bargaining power. The suppliers are trying to use their bargaining power to achieve higher prices and better payment conditions. By inspecting the concentration of suppliers in the industry of RMPRWTC, we do not find any dominant companies which would have a significant influence on the profitability, with the exception of firms which do not manufacture bitumen mixes. These companies are limited to local suppliers due to the technology of bitumen production and its transport costs. Furthermore, in some cases the local manufacturers of bitumen mixes have monopolies, which lowers the company's profitability. Companies that find themselves in financial problems are exposed to an additional impact by the suppliers. If their suppliers believe that they might not fulfill their financial obligations, such companies are forced to pay in advance or find additional means of financial assurance. There is a large choice of alternatives for all the suppliers' products so they are not considered industry's strategic products, with the exception of the aforementioned bitumen mixes.

4.5. Threat of substitutes

A substitute is any product or service which satisfies the same function as the product of another industry. Here, the term substitute mostly refers to service, but it can also refer to alternative materials used in RMPRWTC, as well as the manner of contracting and calculating works. Major road maintenance in manner of service lightens the work load of long term RMPRWTC, especially the work on pavement and road equipment maintenance. Consequently, the increase in funding in major maintenance has a direct and significant influence on long term profitability of the industry of RMPRWTC. By using modern materials such as plastics for the manufacturing of speed humps (hot and cold process), bitumen mixes with polymer-modified bitumen, increase the quality and, in the long term, decrease the need for maintenance. Due to higher costs they are not widely used so their impact is moderate. Current contracts are unit price contracts. The implementation of performance contracts would increase the profitability of companies with better management. Since a significant portion RMPRWTC works cannot be contracted based on the result, performance contracts are a weak factor.

5. RESULTS OF EMPIRICAL RESEARCH

5.1. Rivalry among existing competitors

Table 2: Industrial rivalry

No.	CLAIM	n	Answer distribution					Arithmetic mean	Standard deviation
			I strongly disagree	I disagree	I neither agree nor disagree	I agree	I fully agree		
			1	2	3	4	5		
I	**INDUSTRIAL RIVALRY**							**3,40**	
1	Our company is competing with a large number of other companies	15	0	3	2	8	2	**3,60**	0,99
			0,00%	20,00%	13,33%	53,33%	13,33%	100,00%	
2	The terms that best describe the competition in our industry are : fierce, angry, belligerent.	15	0	1	8	4	2	**3,47**	0,83
			0,00%	6,67%	53,33%	26,67%	13,33%	100,00%	
3	In our industry the competitive actions of one company have conaiderable influence on the rest of the companies and trigger conter moves	15	1	5	2	7	0	**3,00**	1,07
			6,67%	33,33%	13,33%	46,67%	0,00%	100,00%	
4	In our industry companies own resources whith they can use to permanently undertake heavy competitive action and countermeasures	15	0	3	5	7	0	**3,27**	0,80
			0,00%	20,00%	33,33%	46,67%	0,00%	100,00%	
5	In our indusry, adwertising wars are common and very intense	15	4	11				**1,73**	0,46
			26,67%	73,33%	0,00%	0,00%	0,00%	100,00%	
6	In our industry price competition is highty intense (the competition acts fast and with the same measure against price lowering)	15	0	1	5	8	1	**3,60**	0,74
			0,00%	6,67%	33,33%	53,33%	6,67%	100,00%	
7	Lowering the prices and introducing additional discount is a common competitive action in our industry	15	0	2	2	10	1	**3,67**	0,82
			0,00%	13,33%	13,33%	66,67%	6,67%	100,00%	
8	In our industry the companies rarely use a non-pricing form of competition as : quality, devalopment of new products, inovations,	15	1	5	4	4	1	**2,93**	1,10
			6,67%	33,33%	26,67%	26,67%	6,67%	100,00%	
9	Industrial growth is limited and slow	15		1	2	8	4	**4,00**	0,85
			0,00%	6,67%	13,33%	53,33%	26,67%	100,00%	
10	Companies in our industry have a high portion of fixed costs and use significant funds for equipment and facility manufacturing	15	0	0	4	7	4	**4,00**	0,76
			0,00%	0,00%	26,67%	46,67%	26,67%	100,00%	
11	Good and services offered by companies in our industry are relatively undifferentiated and they are very similar by their characteristics,	15	0	0	4	9	2	**3,87**	0,64
			0,00%	0,00%	26,67%	60,00%	13,33%	100,00%	
12	Competitors with in our industry are very different in regards to their bacground, cost structure, managerial goals, personalities and	15	0	4	6	4	1	**3,13**	0,92
			0,00%	26,67%	40,00%	26,67%	6,67%	100,00%	
13	Comanies in our industry are intensely competing to keep and or increase their market share	15	0	0	3	10	2	**3,93**	0,59
			0,00%	0,00%	20,00%	66,67%	13,33%	100,00%	
14	Significant output impediments such as specific assets, economic dependency on the industry, state and society pressure and	15	0	1	6	8	0	**3,40**	0,63
			0,00%	6,67%	40,00%	53,33%	0,00%	100,00%	

Source: Author

Empirical research shows that the majority of respondents presume that there are a lot of companies competing in the industry of RMPRWTC. Competition between them is harsh and belligerent according to 40.00% of the respondents while 53.33% are hesitant.

According to the respondents, companies are intensely trying to keep and/or increase their market share, but they do not agree that intense struggle has any impact on retaliation and counter moves by the competitors. As many as 46.67% of the respondents presume that the companies in the industry have significant resources for actions against competition, which is usually manifested in lower prices. 33.33% are hesitant and 20.00% do not agree. Advertising wars are neither common nor intense, and insignificant funds are spent on marketing activities. Price competition is of relatively high intensity. The respondents

are reluctant in relation to non-price competition, like quality, product development, innovations, etc. The majority of the respondents presumes that growth is slow and limited, which is confirmed by the analysis of funds spent on RMPRWTC during the last five years. Products in this industry are similar and non-differentiated. The respondents' views differ in terms of different origin, cost structure, management goals and competitors' characteristics. Companies have a high share of fixed costs and extract significant funds for special equipment. The majority of respondents (53.3%) consider economic dependence, specific assets and emotional connection to the industry as main obstacles to their leaving the industry while 40.00% are reluctant. The respondents have marked this force as the strongest, with an average mark of 3.40.

5.2. The buyers' bargaining power

Table 3: Buyers' bargaining power

No.	CLAIM	n	Answer distribution					Arithmetic mean	Standard deviation
			I strongly disagree	I disagree	I neither agree nor disagree	I agree	I fully agree		
			1	2	3	4	5		
II	**BUYERS BARGANING POWER**							**2,99**	
15	In our industry a small number of buyers is involved	15	0	4	2	9	0	**3,33**	0,90
			0,00%	26,67%	13,33%	60,00%	0,00%	100,00%	
16	Buyers affiliate to increase their negotiating power	15	2	7	4	2	0	**2,40**	0,91
			13,33%	46,67%	26,67%	13,33%	0,00%	100,00%	
17	Buyers are well informed regarding the demand of our products and their prices, and they are familiar even with our cost structure and	15	0	2	7	6	0	**3,27**	0,70
			0,00%	13,33%	46,67%	40,00%	0,00%	100,00%	
18	Buyers have the ability and means to integrate in our industry	15	1	6	5	3	0	**2,67**	0,90
			6,67%	40,00%	33,33%	20,00%	0,00%	100,00%	
19	Goods and services we sell to the buyers are very similar and replaceable, without differential factors	15	1	7	0	6	1	**2,93**	1,22
			6,67%	46,67%	0,00%	40,00%	6,67%	100,00%	
20	Buyers that buy products of our industry can easily and with small costs change their suppliers	15	3	6	2	3	1	**2,53**	1,25
			20,00%	40,00%	13,33%	20,00%	6,67%	100,00%	
21	Buyers buy products of our industry from a large number of suppliers	15	0	11	3	1	0	**2,33**	0,62
			0,00%	73,33%	20,00%	6,67%	0,00%	100,00%	
22	The intensity of competition among buyers in our industry is very high	15	2	7	3	2	1	**2,53**	1,13
			13,33%	46,67%	20,00%	13,33%	6,67%	100,00%	
23	Price of our products is an important factor in buyers cost structure	15	0	2	1	9	3	**3,87**	0,92
			0,00%	13,33%	6,67%	60,00%	20,00%	100,00%	
24	The increase if quality in our services does not affects the buyers barganing power	15	1	2	3	9	0	**3,33**	0,98
			6,67%	13,33%	20,00%	60,00%	0,00%	100,00%	
25	In our industry the buyer or groups of buyers are powerful	15	0	1	4	9	1	**3,67**	0,72
			0,00%	6,67%	26,67%	60,00%	6,67%	100,00%	

Source: Author

The respondents are aware that the number of buyers in the industry is small, and that they are well informed about industry products, cost structure and prices. The majority of respondents (46.67%) presume that the buyers have a possibility of upstream vertical integration into the industry, while 33.33% are hesitant. A strong disagreement is noticeable in regard to differentiating factors for products and services in this industry. The majority of the respondents (60.00%) think that buyers can replace suppliers with relative ease and

low cost. Only 26.67% do not agree. There is low competition intensity among buyers who acquire products from a small number of suppliers. For the majority of respondents the price of their product is an important part of buyers' cost structure. The general perception is that buyers in this industry are powerful and that the increase in the quality of products would not diminish the buyers' bargaining power. This force has a medium intensity and is marked with an average of 2.99.

5.3. Threat of new entrants

Table 4: Threats of new entrants

No.	CLAIM	n	Answer distribution					Arithmetic mean	Standard deviation
			I strongly disagree	I disagree	I neither agree nor disagree	I agree	I fully agree		
			1	2	3	4	5		
III	**THREATS OF NEW ENTRANTS**							**2,65**	
26	The interest of companies to enter our industry is small	15	2	9	3	1	0	**3,80**	0,77
			13,33%	60,00%	20,00%	6,67%	0,00%	100,00%	
27	In our industry new competitors must enter with large capacities risking overcapacities as well as a strong reaction of existing companies	15	1	3	3	7	1	**2,73**	1,10
			6,67%	20,00%	20,00%	46,67%	6,67%	100,00%	
28	New competitors find significant barriers when entering the industry	15	0	2	5	8	0	**2,60**	0,74
			0,00%	13,33%	33,33%	53,33%	0,00%	100,00%	
29	Newcomers or new competitors in our industry must spend significant funds their brand and gain consumers loyal to the existing	15	1	3	3	7	1	**2,73**	1,10
			6,67%	20,00%	20,00%	46,67%	6,67%	100,00%	
30	Existing companies in our industry have significant resources which they can use to prevent the entry of new competitors	15	0	3	4	7	1	**2,60**	0,91
			0,00%	20,00%	26,67%	46,67%	6,67%	100,00%	
31	State politics and regulations have a significant influence on the companies entering our industry	15		3	3	12		**2,60**	0,83
			0,00%	20,00%	20,00%	80,00%	0,00%	120,00%	
32	With the acceptance to the EU inflow of new competitors is expected	15		2	3	9	1	**2,67**	0,83
			0,00%	13,33%	20,00%	60,00%	6,67%	100,00%	
33	Companies that act within the industry have a cost advantage over new entrantsnnonrelated to volume of business activity (know how,	15	0	0	5	9	1	**2,27**	0,59
			0,00%	0,00%	33,33%	60,00%	6,67%	100,00%	
34	To enter our industry one needs a significant capital and/or financial resources	15	0	0	3	11	1	**2,13**	0,52
			0,00%	0,00%	20,00%	73,33%	6,67%	100,00%	
35	The reaction of the exsiting companies to the new entrants would be fierce	15	0	1	3	11	0	**2,33**	0,62
			0,00%	6,67%	20,00%	73,33%	0,00%	100,00%	

Source: Author

For most respondents the interest in entering the industry is not small. As many as 53.33% of the respondents agree that, in order to enter the industry, aspirants need great production capacities and are likely to encounter significant entry barriers. 26.67% of respondents think that industry entrance is not capital intensive and 13.33% find no significant entry barriers. Most of the respondents (66.67%) agree that the reaction of existing companies to new ones would be fierce, and that the companies have significant resources to prevent the entrance of new competitors (53.33%). Politics and regulations are an encumbering factor for the new entrants, stated 90% of respondents. 66.67% of respondents think that companies working in the industry have cost advantages over new entrants which are not related to workload (e.g. knowhow, access to raw material, buyers' loyalty) and that entering the EU increases the possibility of new entrants to the industry. The majority of respondents (73.33%) agree that the reaction of existing companies to new entrants would be fierce and

that the aspirants need significant capital and financial resources to enter the industry. With this force, the scoring is in opposition with the rest of the forces. The claim "I fully agree" gained one point and "I fully disagree" gained five points. The respondents rated this force as medium weak, with an average score of 2.63.

5.4. Suppliers' bargaining power

Table 5: The bargaining power of suppliers

No.	CLAIM	n	Answer distribution					Arithmetic mean	Standard deviation
			I strongly disagree	I disagree	I neither agree nor disagree	I agree	I fully agree		
			1	2	3	4	5		
IV	**SUPPLIERS' BARGANING POWER**							**3,24**	
36	There is a relativly small number of suppliers of inputs (goods, capital, work) in our industry	15	0	4	6	5	0	**3,07**	0,80
			0,00%	26,67%	40,00%	33,33%	0,00%	100,00%	
37	Input suppliers for our industry ask for and get cessions	15	0	3	9	3	0	**3,00**	0,65
			0,00%	20,00%	60,00%	20,00%	0,00%	100,00%	
38	Suppliers' in our industry can significantly dictate their conditions and thus increase prices	15	0	2	2	11	0	**3,60**	0,74
			0,00%	13,33%	13,33%	73,33%	0,00%	100,00%	
39	Replacing suppliers demands additional costs	15	0	4	5	6	0	**3,13**	0,83
			0,00%	26,67%	33,33%	40,00%	0,00%	100,00%	
40	Supliers' products are different in their characteristics, price and quality	15	0	0	7	8	0	**3,53**	0,52
			0,00%	0,00%	46,67%	53,33%	0,00%	100,00%	
41	In our industry suppliers are powerfull	15	0	0	9	6	0	**3,40**	0,51
			0,00%	0,00%	60,00%	40,00%	0,00%	100,00%	
42	Suppliers' products directly influence our industry's product quality	15	0	0	1	12	2	**4,07**	0,46
			0,00%	0,00%	6,67%	80,00%	13,33%	100,00%	
43	Our indusry is not the main buyer of products (suppliers sell their product mainly to other industries)	15	0	4	8	3	0	**2,93**	0,70
			0,00%	26,67%	53,33%	20,00%	0,00%	100,00%	
44	Companies in our industry are not well acquainted with their suppliers, their market share and cost structures	15	1	5	5	4	0	**2,80**	0,94
			6,67%	33,33%	33,33%	26,67%	0,00%	100,00%	
45	Suppliers' have a potential for a downstream vertical integration	15	0	4	9	2	0	**2,87**	0,64
			0,00%	26,67%	60,00%	13,33%	0,00%	100,00%	

Source: Author

The respondents are indecisive when it comes to perceiving the number of suppliers and the cost of their replacement. That is likely connected to their dependence on local suppliers and different way of conducting business in certain geographical areas. The majority of respondents (60.00%) are indecisive about whether suppliers ask and get favors, while 73.33% believe that suppliers can significantly dictate the terms and thus increase prices and lower the industry's profitability. The respondents disagreed with respect to the cost of supplier replacement, the level of familiarity between companies and suppliers, their market conditions and cost structure, as well as this industry's importance to suppliers. The differences can be attributed to terms in which they conduct business. Suppliers' products have a direct effect on the quality of the final product in this industry. There is a great disagreement regarding suppliers' power, potential for the downstream integration, and the importance of the industry to the supplier. 40.00% of the respondents believe that the suppliers are powerful, while 26.67% do not agree that they have the potential for downstream vertical integration into the industry. The respondents mark this force as medium in strength with an average mark of 3.24.

5.5. The threat of Substitutes

Table 6: Threat of Substitutes

No.	CLAIM	n	Answer distribution					Arithmetic mean	Standard deviation
			I strongly disagree	I disagree	I neither agree nor disagree	I agree	I fully agree		
			1	2	3	4	5		
V	**THREAT OF SUBSTITUTES**							**2,43**	
45	There is a substitute for our industries product/services	15	0	6	7	2	0	**2,73**	0,70
			0,00%	40,00%	46,67%	13,33%	0,00%	100,00%	
46	Our buyers/clients like to move from our product/service to the substitute	15	1	10	3	1	0,00%	**2,27**	0,70
			6,67%	66,67%	20,00%	6,67%	0,00%	100,00%	
47	The needs that our industry's products/services satisfy can be easily replaced by other products	15	0	10	4	1	0	**2,40**	0,63
			0,00%	66,67%	26,67%	6,67%	0,00%	100,00%	
48	Accessibility of alternative products/service significantly limits the profit potential of our industry	15	1	9	4	1	0	**2,33**	0,72
			6,67%	60,00%	26,67%	6,67%	0,00%	100,00%	
49	Alternative products are generally better quality and offer bigger advantages to consumers then our industry's products	15	3	9	3	0	0	**2,00**	0,65
			20,00%	60,00%	20,00%	0,00%	0,00%	100,00%	
50	Legal regulations encourage development of alternative products	15	1	5	8	1	0	**2,60**	0,74
			6,67%	33,33%	53,33%	6,67%	0,00%	100,00%	
51	Companies in our industry create alternative products themselves	15	1	9	3	2	0	**2,40**	0,83
			6,67%	60,00%	20,00%	13,33%	0,00%	100,00%	
52	The price of our industry's products is higher than the alternative products price	15	0	7	6	2	0	**2,67**	0,72
			0,00%	46,67%	40,00%	13,33%	0,00%	100,00%	

Source: Author

The majority of respondents are indecisive regarding the substitute for regular road maintenance, while 40.00% believe that the substitute for this kind of enterprise does not exists.

The research shows that buyers do not abandon the industry's products easily and that the buyers' needs are not easily satisfied with other products. The majority believe that the quality of substitute products is lower, but also more expensive, and their accessibility does not limit the profit potential of the industry. 53.33% of the respondents neither agree nor disagree that legal regulations contribute to the development of the substitutes, while 40.00% think that legal regulations do not contribute at all. The majority believes that the companies in this industry do not develop substitute products. 46.67% of the respondents presume that product prices in this industry are not higher than substitute prices, while 40.00% hesitate about this postulate. This force was recognized as the weakest in affecting the profitability increase. Its average mark is 2.43.

6. CONCLUSION

The construction industry in Croatia, and worldwide, is characterized by a high sensitivity to economic tendencies and dependence on public investments in civil engineering and infrastructure building. In comparison, the industry of RMPRWTC is not prone to great fluctuation under the impact of outer and inner economical tendencies businesswise. Its decline or growth is less dependent on GDP than other branch of the construction industry. Therefore, the appeal of this industry will increase with the deepening of economic crisis and it will decline in the environment of economic growth.

The respondents have determined that the rivalry among existing competitors represents the strongest competitive force with a long-term negative effect on the profitability of the industry, but the strategic alliance between 14 companies diminishes the intensity of this competitive force, thus brushing it aside. The buyers' bargaining power is marked as a medium intensity force, but the highly regulated nature of this industry, where the buyer is also the regulator, promotes this force to the first place in terms of intensity and influence on long-term profitability and appeal of the industry.

Our analysis of Porter's model indicates the static nature of RMPRWTC industry and the absence of any serious threat of new entrants provided that the existing regulatory system is maintained. Significant and dynamic changes in concentration are possible only if the regulatory model is changed under the pressure and influence of major construction companies which could enter the market due to prolonged recession and the lack of work in their basic industries.

The companies are more efficient than the competitive forces, which potentially leads to a higher profitability. This is due to the combined effect of the regulatory framework and strategic alliances: reduced competition and low threat from new entrants.

The loyalty of the buyer, who also creates the regulatory framework, is a key factor of any competitor's sustainable advantage. Companies should, therefore, invest more in the differentiation and quality of their products and services.

Because of its limitations, Porter's model cannot produce a realistic intensity of some competitive forces. Namely, it does not take into account strategic alliances (Dyer & Singh, 1998) between existing competitors in the industry. Furthermore, since the buyers are local government institutions and state-owned companies, their influence on the industry would be more visible if there was a sixth force (government policy) in the model (Vining, Shapiro & Borges, 2003). Further limitations of the research include a small sample size and the competency of the respondents who are not part of top management.

Future research could investigate the same issue from a resource-based view to determine a relative impact of a company's resources and industry membership on a competitive advantage.

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APPENDIX

Table 7: Company size by employees

Companies sorted by number of employes	2009		2010		2011		2012		2013	
	Number of companies	Percentage	Number of companies	Percentage	Number of companies	Percentage	Number of companies	Percentage	Number of companies	Percentage
Small < 49 employees										
Medium > 50 <249 employees	11	64,71%	13	76,47%	13	76,47%	13	76,47%	13	76,47%
Large > 250 employees	6	35,29%	4	23,53%	4	23,53%	4	23,53%	4	23,53%
TOTAL	17	100%	17	100%	17	100%	17	100%	17	100%

Source: Author

Table 8: Company size by income

Companies sorted by income	2009		2010		2011		2012		2013	
	Number of companies	Percentage	Number of companies	Percentage	Number of companies	Percentage	Number of companies	Percentage	Number of companies	Percentage
Small < 65,000,000 kn	8	47,06%	9	52,94%	7	41,18%	5	29,41%	6	35,29%
Medium <260,000,000kn	9	52,94%	8	47,06%	10	58,82%	12	70,59%	11	64,71%
Large > 260,000,000kn										
TOTAL	17	100%	17	100%	17	100%	17	100%	17	100%

Source: Author

Table 9: Company size by capital assets

Companies sorted by assets	2009		2010		2011		2012		2013	
	Number of companies	Percentage	Number of companies	Percentage	Number of companies	Percentage	Number of companies	Percentage	Number of companies	Percentage
Small < 32,500,000 kn	2	11,76%	3	17,65%	2	11,76%	2	11,76%	2	11,76%
Medium <130,000,000kn	15	88,24%	14	82,35%	15	88,24%	15	88,24%	15	88,24%
Large > 130,000,000kn										
TOTAL	17	100%	17	100%	17	100%	17	100%	17	100%

Source: Autor

Table 10: Ownership structure and origin of capital

Ownership structure	No. of companies	Percentage	Origin of capital	No. of companies	Percentage
100 % private	4	18,75%	100 % domestic	15	87,50%
>50% private	9	56,25%	>50% foreign	1	6,25%
>50% state/county	4	25,00%	100% foreign	1	6,25%
TOTAL	17	100,00%	TOTAL	17	100,00%

Source: Author

Table 11: Industry of RMPRWTC in Croatia 2009 – 2013

Industry of RMPRWTC	2009	2010	2011	2012	2013
Number of companies	17	17	17	17	17
Total income	1.194.581.938,18	1.121.154.991,53	1.218.772.974,00	1.306.478.950,00	1.320.606.385,80
% growth in relation to 2009		-6,15%	2,03%	9,37%	10,55%
Routine maintenance income	714.130.260,13	751.617.786,43	755.862.166,68	788.952.473,00	747.082.935,44
% growth in relation to 2009		5,25%	5,84%	10,48%	4,61%
Number of employees	3395	3297	3247	3083	3053
% growth in relation to 2009		-2,89%	-4,36%	-9,19%	-10,07%
Total income per employee	351.865,08	340.053,08	375.353,55	423.768,72	432.560,23
% growth in relation to 2009		-3,36%	6,68%	20,44%	22,93%
Rout. maint. income per employee	210.347,65	227.970,21	232.787,86	255.904,14	244.704,53
% growth in relation to 2009		8,38%	10,67%	21,66%	16,33%
Average annual net salary	4.995	4.729	4.799	4.973	5.126
% growth in relation to 2009		-5,31%	-3,92%	-0,43%	2,63%

Source: Author