

PARAMETERS FOR PRODUCTION MANAGEMENT SYSTEM OF WOOD PROCESSING SME'S IN CROATIA

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ABSTRACT

Small and medium enterprises (SME's) make over 99 % of all industrial enterprises in Croatia. Very similar percentage of SME's can be found within Croatian wood processing and furniture manufacturing companies. The aim of this research was to establish the actual situation in production management systems of SME's in Croatian wood processing. Total of 30 small and medium companies from different areas of Croatia were surveyed trying to establish the advantages and problems in their production management systems, with the goal to propose the model to create better systems within SME's in Croatian wood processing branch, which could help companies to achieve better production and business results. Because of the small number of employees, they are not able to meet all of the conditions and to implement all the parameters they would like to. So, they concentrate to those parameters they consider are the most important – product price, product quality, customer demands, fast delivery of finished product.

KEY WORDS

small and medium enterprises (SME's), wood processing, furniture manufacturing, production management system

INTRODUCTION

Small and medium enterprises (SME's) represent the very significant part of economy and industrial system of every single country. Croatia is no different in that segment. And in recent time numbers for SME's are increasing year by year (Bistričić *et al.*, 2011). So, in the year 2014 there were over 100.800 small and medium enterprises, which represent 99,6 % of all industrial subjects in Croatia. In the year 2015 number of SME's increased to over 104.100 enterprises (99,7 %). Out of those 99,7 % of all industrial subjects in Croatia, 98,5 % were micro and small enterprises, and 1,2 % were medium enterprises.

Since SME's have to adopt to fast and intensive changes on the market (Nováková, 2003; Nováková, 2004), very often they have to be innovative in products, production systems, services and business, which gives some other perspective to production management system requirements than in large enterprises, because of possible lack of personell for the job (Jelačić *et al.*, 2009; Neira *et al.*, 2009).

According to Croatian and European laws, micro enterprises are those which employ less than 10 employees and which income per year is less than 2 mil. €. Small enterprises are employing less than 50 persons with annual revenue of less than 10 mil. €. Medium enterprises have annual revenue of less than 50 mil. €, and less than 250 employees (Nanić, 2013; Krajnović and Lordanić, 2012; Thompson, 2001).

Small and medium enterprises participated in GDP with over 52 % in 2014, and over 53 % in 2015 (35 % was the share of small enterprises, and 18 % the share of medium enterprises). In 2014 some 68 % employees were employed in SME's, and in 2015 SME's employees made 68,4 % of all employees in

Croatia (50,9 % in small enterprises and 17,5% in medium enterprises).

In total Croatian export in year 2014 small and medium enterprises participated with 48 %, and in year 2015 that share of participation increased to 48,5 %, of which small enterprises participated with 25,2 % and medium enterprises participated with 23,3 %.

The situation and percentages of small and medium enterprises in Croatian wood processing and furniture manufacturing companies (among over 1.500 enterprises and business subjects in this industrial branch) is similar to overall situation in Croatian industry. Since most of the wood processing and furniture manufacturing companies are situated in rural areas of Croatia, small and medium enterprises make a large percentage of all wood industry companies. Also, Croatian wood processing and furniture manufacturing companies are highly export oriented, so percentage of SME's export exceed the numbers given above presenting total Croatian export.

MATERIAL AND METHOD

The aim of this research was to establish the actual situation in production management systems of SME's in Croatian wood processing and furniture manufacturing. We wanted to establish which parameters of management owners and managers in small and medium enterprises consider most important for their business and which of them they consider crucial for improving their business and production results in the near future. The questionnaire that was made for that purpose was trying to establish the advantages and problems in SME's production management systems, with the goal to propose the model to create better production and management systems within SME's in Croatian

wood industry branch, which could help companies to achieve better production and business results (Espinoza and Smith, 2015; Nowduri, 2014; Skorup, 2012).

The research was conducted with the survey in 30 small and medium companies in different regions of Croatia using questionnaire with 40 different questions with several statements of which manager in the company had to choose one. Asked questions were statements about different production management parameters more or less important for each company production management system, according to manager's/owner's opinion.

Questionnaire was divided in two major parts. The first part, consisted of 11 questions, was dedicated to general information about the company, while the second part consisted of 29 questions directly connected to production management parameters. Those 29 questions gave several statements for each question with marks 1 to 5 (1 – not important at all, 5 – most important).

All the data collected by the survey were statistically processed using the descriptive statistic methods in Excel and Statistica computer softwares.

RESEARCH RESULTS

Questionnaire was spread among companies in different Croatian regions equally, so all regions would participate in the research accordingly to their

participation in number of companies all together, so 50 % of surveyed companies are situated in central Croatia, 20 % are situated in eastern Croatia, 20 % in mountain area of Croatia and 10 % in southern part of Croatia (seaside). Of surveyed companies 27 % were micro companies, 33 % were small companies and 30 % were medium enterprises. Production program of surveyed enterprises, given in percentage, is shown on figure 1.

Two thirds (67 %) of companies manufacture products exclusively by the order of known customer, while 33 % of companies have their own shop, so they combine production by the order of known customer and production for the shop, for unknown customer.

Of surveyed enterprises, 26,7 % are small craft companies, usually family business, manufacturing individual (unique) products orderd by single customer who came to the company to order some furniture or some joinery by reputation (they gathered the information about the company from a friend or by chance). Other companies are some kind of legal entity. Most of the small craft companies are situated in central Croatia, while all surveyed companies in mountain area of Croatia are legal entities

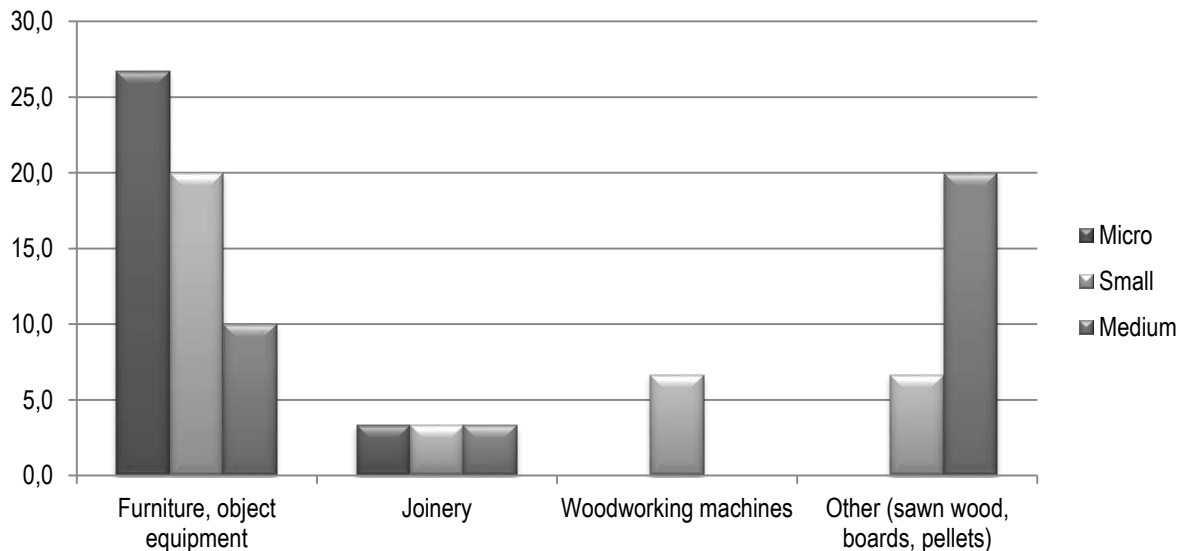


Figure 1. Production program in general in SME's (in %)

As it was to be expected, micro and small enterprises usually manufacture their products in small series (30 % of all manufactured products) or as unique products (43 %). Medium enterprises make their products in big series (27 %) or

sometimes in small series, as it is presented in figure 2.

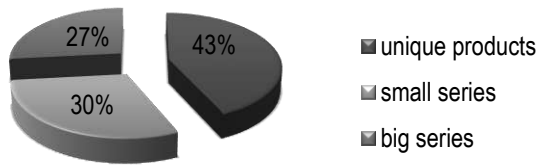


Figure 2. Production in SME's

Most of the small and medium enterprises, two thirds of them (67 %), use combined technology when manufacturing their products. One third of SME's use computer aided technology mostly or exclusively (13 % of all companies) or classic technology and hand tools (20 %).

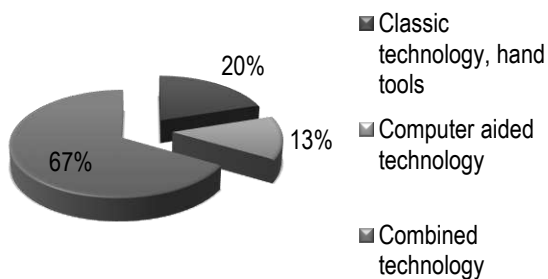


Figure 3. Equipment and tools in SME's

In the second part of the questionnaire we tried to establish which parameters of the production management system are considered most important by owners and managers of small and medium enterprises. Those parameters were given in 29 questions (statements) divided in 6 groups, and the results are given below in following figures.

The second part of the questionnaire consisted of questions and statements which managers / owners had to mark according to their opinion of importance of the statement. Mark 1 means that given parameter is not important at all, and mark 5 means that given parameter is the most important one. Following graphs show what were the opinions of managers / owners to selected particular question

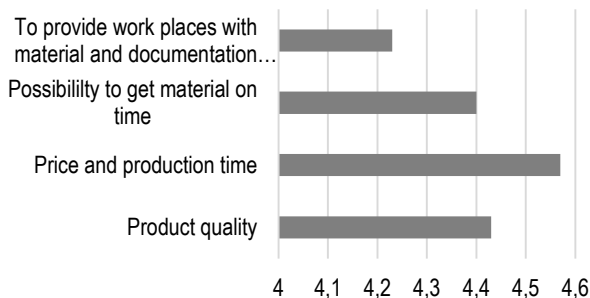


Figure 4. Importance of particular production input

Since most of the companies are manufacturing their products for known buyer / customer, those customers are involved in negotiation about the price and production time for the products. Also, many SME's have co-operant companies which manufacture primary or secondary products which are input (parts) for manufacturing products of higher economic value. Therefore, price, production time and quality are given as particular production inputs, and according to managers / owners price and production time are most important parameters, followed by production quality.

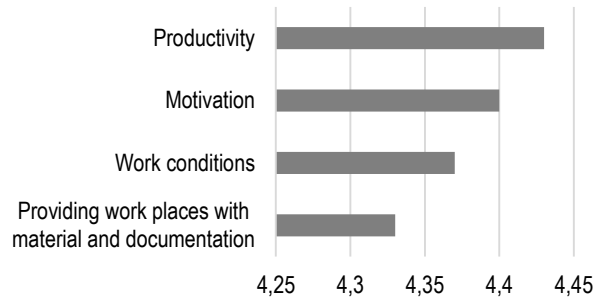


Figure 5. Criteria for production level

The most important criteria for production level of small and medium enterprises is productivity followed by motivation, which is also highly connected since you can increase productivity by motivating employees to work better, faster or in higher quality.

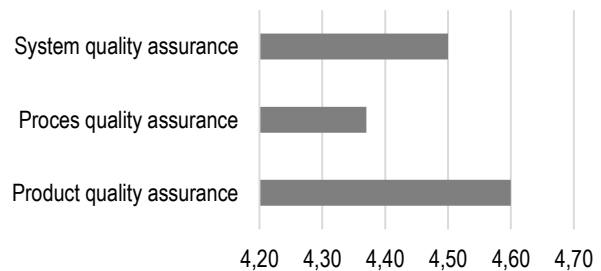


Figure 6. Importance of quality for SME's

Since customers are less familiar with system or process quality in the company, it was to be expected that among quality criteria, product quality assurance is the most important criteria for owners / managers.

Similar to parameters for production inputs, parameters for production outputs are evaluated according to level of participation of customers / buyers in the process. And for customers, price, production time and quality of the product are most important parameters. Therefore, the owners / managers have the same opinion.

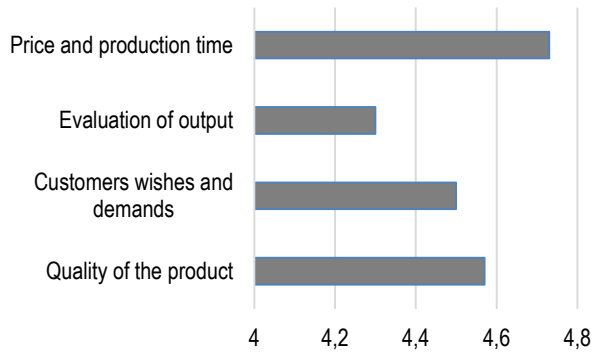


Figure 7. Importance of particular parameter for production output

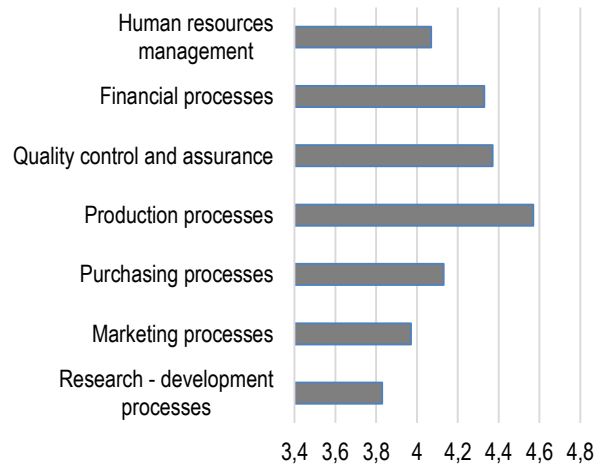


Figure 9. Importance of particular process for production in SME's

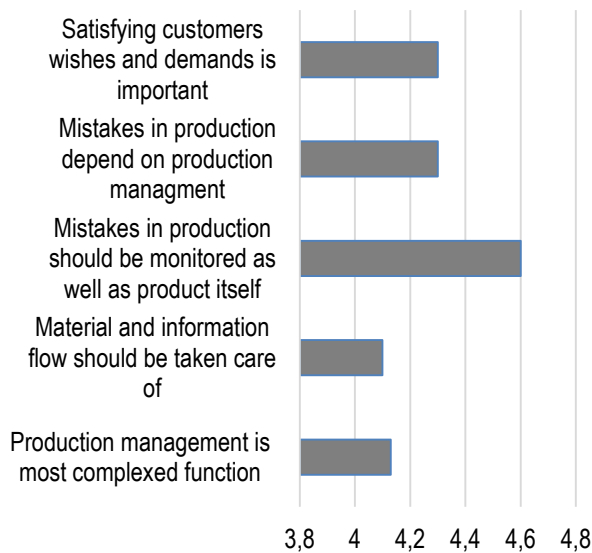


Figure 8. Statements on production management

According to owners / managers opinion the most important work managers should take care of in managing production process in the company is monitoring the quality of production process as well as monitoring the quality of the product itself (figure 8).

This statement is followed by the statement that the most important process in the company is production process, followed by quality control and assurance and by financial processes (figure 9).

Some other questions with high marks were those regarding orientation to customers wishes and demands. Marks between 3.87 and 4.47 were given to answers regarding keeping the customers for future (4.47), matching customers demands in full (4.40), attracting new customers with production program (4.27), keeping track on the market with introducing new products (4.00) and new strategies in annual business plans (3.87).

Managers / owners gave high marks to statements on which criteria they think is the most important to customers. So, they think the most important thing is high level of service (4.67), fast delivery of finished products (4.60), material availability (4.50), price (4.37), payment conditions (4.23), and supplier reputation (4.07).

CONCLUSION

Owners / managers of small and medium enterprises are aware of the fact that many parameters and conditions are important in managing the company. Because of the small number of employees (especially in small and micro companies), they are not able to meet all of those conditions and to implement all the parameters they would like to. So, they concentrate to those parameters they consider are the most important – product price, product quality, customer demands, fast delivery of finished product. Because of the same reason, lack of personell and doing all by themselves, they rarely have the oportunity to implement any kind of innovation or to implement some kind of quality assurance system.

In general, as shown on the figure 9, and according to highest marks owners / managers gave to each criteria or statement individually, they consider production process as the most important one to pay

attention to. Quality of the production process is followed by the quality of the product, which is strongly connected to each other. All the other management parameters have lower marks.

But, at the same time, it is possible to see that, all the marks, no matter what the criteria is, even the lowest marks, are above 3.80, which on the scale 1 to 5 is considered high. That means that all criteria are important and there is a slight difference among them to make a strong decision which criteria to pay the most attention to. The range of all given marks throughout the survey was between 3,81 and 4,73, and since the highest mark was 5, those marks are considered high or very high.

This research is the basis for creating the model of supporting SME's with meeting conditions and parameters important to those companies to improve and develop

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