The Role of ICT in Croatian Small Enterprises

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Abstract. *This paper deals with the role of ICT in Croatian small enterprises. Small enterprises are one of the most important initiators of overall economic development.*

ICT plays an important role in the current economy. Small enterprises need to take advantage of the power of ICT in order to take on the competition.

The paper follows the research based on the questionnaire as data gathering method. The paper highlights the number of computers, connection to the Internet, evidence of formal education, financing of education costs, ICT certificates, budget for the investment in ICT, planning of ICT system development, security and prevention of ICT risks, the benefits of ICT use and the obstacles to ICT implementation.

Keywords. ICT, small enterprise, ICT literacy, obstacles, benefits

1 Introduction

Small enterprises are important initiators of innovation and change all over the world, as well as in Croatia. Investment in new technologies can significantly contribute to overcoming unfavorable economic conditions. ICT plays an important role in the current economy. ICT products, solutions and services can make considerable improvements in the field of cost reduction and the increase of business performance of an enterprise, regardless of its size.

The research carried out on the sample of small enterprises in Croatia is aimed at getting insight in the role of ICT in Croatian small enterprises, exploring the existing number of computers in the enterprise, connection to the Internet, the ways of achieving formal education in ICT, financing of education costs for the formal education in ICT, covering the costs of ICT for the employees, the employees' ICT certificates, the annual budget for the investment in ICT, planning of the ICT system development and the development strategies, as well as the ICT system security and ICT risk prevention.

The paper is organized in six sections. In the second and in the third section of the paper authors investigates the literature about the concept of ICT and about the concept of small enterprise. The overview of the methodology is described in the fourth section. The fifth section highlights the findings of the survey and the last section of the paper is dedicated to conclusions and recommendations for the further research.

2 Information and communication technologies (ICT)

Information and communication technologies (ICT) generally relates to those technologies that are used for accessing, gathering, handling and presenting or communicating information. The technologies encompass hardware (e.g. computers and other devices); software applications; and connectivity (e.g. access to the Internet, local networking infrastructure, and videoconferencing). The most significant fact about ICT is the rapid rate of change that characterizes both the technologies and their use [11].

ICT allows access to information from different business processes. Thus, it creates a reliable information basis for current business activities and decision making. It also provides solutions for reporting on certain activities within business processes and within organizational

units, as well as the comparison of the planned and achieved objectives [12].

The role of ICT in the business arena has been continuously shifting over the last decades, and it has become an important part of how companies manage and control their resources [5]. Comparison of performance indicators of small, medium-sized and big enterprises shows that size of an enterprise affects its performance.

The Internet has become an essential part of the lives of the activities of businesses, governments and individual users [2]. Investment in new technologies can contribute to overcoming unfavorable economic conditions. ICT, products, solutions and services can make significant improvements in the field of cost reduction and increase the business performance. Therefore the education, innovation, development and upgrading of ICT solutions and the possibility of their wide-range application have to be some of the key directions of shaping business activities. It is difficult to imagine future business environment that is not supported by ICT. Configuring and deploying computer infrastructure for businesses has been a tedious task and one of the greatest barriers to be crossed by the small businesses [6].

Computer literacy is defined as the knowledge and ability to use computers and related technology efficiently, with a range of skills covering levels from elementary use to programming and advanced problem solving. Another valuable component of computer literacy is to know how computers work and operate [18[. Having basic computer skills is a significant asset in small enterprises. There is no single concept of learning through the use of ICT. Many different types can be envisaged: computer assisted learning; web-learning; computer-classes; online training; distance education; eLearning; virtual learning; digital training; etc. Formal learning takes place within an organized and structured context like. Non-formal learning usually takes place outside the traditional systems of education and training. It can be intentional for the learner but usually does not lead to formalized certificates.

The European Computer Driving License (ECDL), also known as International Computer Driving License (ICDL), is a globally recognized information and communication technology and digital literacy qualification program. ECDL / ICDL certification programs consist of modules which define the skills and competencies necessary to be a proficient user of computer

applications [18]. The EUCIP (European Certification of Informatics Professionals) certification program is a professional certification and competency development scheme, aimed at informatics professionals and practitioners. It consists of a core certification as well as specialized certifications for a range of competences which are set out in an array of job-specific profiles. In addition, there is a standalone certification for IT Administrators [19].

Computers are tools that can assist business adoption of modern management practices. Although business are diverse, they all participate in such tasks as paying workers and suppliers, accounting and tax reporting, and interacting with customers. Applying computers to these tasks is nearly universal in large businesses but not necessarily in small enterprises. Using computers for business functions raises the productivity of small enterprises. In small enterprises computers are used for several business functions, especially accounting [8].

ICT is a tool that will only work in enterprises that are structured to use it and that require change. US businesses have become more adept at getting value from their ICT activities. Thus ICT spending in the US has jumped to 5.4 % in 2010 [9].

Building a high-quality ITC system in enterprises is one of the important prerequisites for the participation in international markets and globalization processes. In addition to raising the level of preparation and organization of production and service operations, enabling management, quality management and control processes, information systems should enable communication with customers and suppliers at a satisfactory technical level [2].

Information security management, as a particularly important part of the overall management in an organization, has become more and more significant. This is due to the information society development, information threats and the increased awareness of their consequences. Security is a discipline concerned with protecting networks and computer systems against threats such as hacking exploits, malware, data leakage, spam attacks, as well as ensuring trusted access. Enterprises have deployed security policies and devices of all types to defend against threats, and to prevent unintended data leakage [10]. An effective information risk management program is a key

element in an enterprise's overall operational risk and governance program. [3].

Successful integration of ICT will have profound effects on the operations and the results of an enterprise, which can be summarized as benefits: faster communication; faster reaction to markets; smoother business processes; lower costs; higher quality of products; increased turnover [9].

In developing countries and transitional economies, SMEs usually face serious obstacles in adapting to and participating in ICT, such as: network problems; unreliable infrastructure, lack of financial resources; lack of awareness and knowledge of ICTs, high maintaining costs; high price; lack of skills and ICT illiteracy [4].

3 Small Enterprise

The official definition of the small business sector according to the size of the small business actors in Croatia is provided by the Small Business Development Promotion Act [17].

Micro enterprises are legal entities and natural persons whose number of employees averages less than 10 over the year and achieve a total annual turnover of up to HRK 14 million, or have a balance sheet total (applies to those subject to profits tax) or long-term assets (applies to those subject to income tax) to the value of up to HRK 7 million.

Small enterprises are legal entities and natural persons whose number of employees averages less than 50 over the year and achieve a total annual turnover of up to HRK 54 million, or have a balance sheet total (applies to those subject to profits tax) or long-term assets (applies to those subject to income tax) to the value of up to HRK 27 million.

In European Union enterprises qualify as micro, small or medium sized enterprises if they fulfil maximum ceilings for staff headcount and either a turnover ceiling or a balance sheet ceiling. Small enterprises are defined as enterprises which employ fewer than 50 persons and whose annual turnover or annual balance sheet total does not exceed 10 million euro. Micro enterprises are defined as enterprises which employ less than 10 persons and whose annual turnover or annual balance sheet total does not exceed 2 million euro. An enterprise is any entity engaged in an economic activity, irrespective of its legal form [14].

Despite the global recession, small businesses are still the most dynamic segment of Croatian economy. Small and medium sized enterprises account for 99.5% of the total number of registered companies, and they employ 66% of the total number of employed persons in Croatia [17], which is very similar to the role and importance of small enterprises in European Union [1].

4 Methodology

The research was based on the survey using questionnaires and a few interviews carried out on the convenience sample of small enterprises in Croatia in 2011. Descriptive statistics were used to describe the basic features of the data in the study.

4.1 Survey

Survey research is one of the most important areas of measurement in applied social research. The broad area of survey research encompasses any measurement procedures that involve asking questions of respondents. Surveys can be divided into two broad categories: the questionnaire and the interview [13].

4.2 Sampling and sample size

The goal of sampling is to obtain a sample that is representative of the larger population. Probability sampling is any sampling method in which every population unit has a chance of being selected in the sample, and this probability can be accurately determined. A random sample is a subset of individuals that are randomly selected from a population. Nonprobability sampling is any sampling method where some elements of the population have no chance of selection, or where the probability of selection cannot be accurately determined. It involves the selection of elements based on assumptions, the selection of elements is nonrandom, and nonprobability sampling does not allow the estimation of sampling errors. Convenience sampling is a type of nonprobability sampling which involves the sample being drawn from the part of the population which is close to hand. A convenience sample is a sample of subjects taken from a group which is conveniently accessible to a researcher. The advantage of a convenience

sample is that it is easy to access; the disadvantage is that it is not an accurate representation of the population and that the results from a study conducted with such sample cannot be generalized to the population as a whole [13].

Because of the large number of small enterprises and limited financial resources it was not possible to conduct the research on the random sample.

Population scope (N), i.e. the target basic set presented the final set of 89,438 small enterprises in the Republic of Croatia

Due to the availability of the respondents, a convenience sample (n) of 150 small enterprises was drawn. The sample was set up in collaboration with the Croatian Employers' Association (HUP) – The Association of Small and Medium-sized Entrepreneurs, The Association of Teachers/Trainers' for the Entrepreneurship, The Development Agency of Zagorje (ZARA) and several small enterprises which were accessible to the authors. The ratio of the sample size and population scope is called the choice fraction (f) [13]. The choice fraction for the related research is 0,0017, eq. 1.

$$f = \frac{n}{N} = \frac{150}{89.438} = 0,0017 \tag{1}$$

4.3. Questionnaire

Questionnaires are usually paper-and-pencil instruments that the respondent completes. The questionnaire was designed using multiple choice questions with single response and multiple responses to produce large amounts of general and the ICT related topics. A multiple choice question with single response is a type of form to be filled out by checking exact one of the choices in a list. A multiple choice question with multiple responses is a type of form to be filled out by checking one or more of the choices in a list.

Questions and the choice of answers in the questionnaire were set up partly based on the literature overview, partly based on preliminary interviews with owners-managers of small enterprises and partly based on consultation with ICT teachers.

The general part of the questionnaire consisted of 11 multiple choice questions with single response about the name of the enterprise; legal form; head office; foundation year; core business activity; the average number of employees;

revenues; financial sources; and value of long-term assets. It also covered the respondents' age; job position; work experience on current positions; and educational background. Business activities were classified according to the Croatian national classification of economic activities NKD 2007 [16].

The specific part of the questionnaire consisted of 13 multiple choice questions related to the present number of computers (single response); connection to the Internet (single response); ways of gaining evidence of formal education to use ICT (multiple response); covering of ICT education costs (single response); the employees' ICT certificates (multiple response); most frequently used general tools (multiple response); most frequently used network tools and services (multiple response); business functions in which computers were most commonly used (multiple response); the annual budget for the investment in ICT (single response); the development plan of the ICT system (single response); the ICT system security (single response); ICT risk prevention (multiple response), the benefits of and obstacles to ICT use in business activities.

In the questions referring to the benefits of and obstacles to ICT use, the respondents were asked to use the following scale to answer: (1) not at all; (2) to a small extent; (3) to a moderate extent; (4) to a great extent and (5) to a very great extent.

Authors also explained the purpose of the survey and stressed the confidentiality of the results. The questionnaires were distributed to small enterprises by regular mail, by e-mail and personally delivered by the authors.

4.4. Descriptive statistics

Descriptive statistics: the distribution, the central tendency and the dispersion were used to describe the basic features of the data in the study. They provide simple summaries about the sample and the measures.

The distribution is a summary of the frequency of individual values or ranges of values for a variable. One of the most common ways to describe a single variable is with a frequency distribution. Depending on the particular variable, all of the data values may be represented, or the values may be grouped into categories [6].

The mean, the mode and the median are measures of central tendencies.

The mean ($\bar{x}$) is equal to the sum of all the values in the data set divided by the number of values in the data set, eq. 2, where n is the sample size and the x correspond to the observed value [61].

$$\bar{x} = \frac{1}{n}(x_1 + x_2 + \cdots + x_n) = \frac{1}{n}\sum_{i=1}^{n} x_i. \quad (2)$$

The mode of a data set is the number that appears most frequently. The median of a data set is the middle number when the set is sorted in numerical order [6].

Measures of the dispersion are standard deviation and variance. The variance (s^2), eq.3, is a measure of how far each value in the data set is from the mean [6].

The standard deviation (s) is a measure of the dispersion of a set of data from its mean. The more spread apart the data, the higher the deviation [6]. Standard deviation is calculated as the square root of variance, eq.4.

5 Findings

Most questionnaires were distributed to small enterprises in the following Counties: The City of Zagreb 62 (40%); Zagreb County 12 (8%); Krapina-Zagorje County 33 (22%), which makes total of 46 (70%).

Table 1. Distributed and returned questionnaires

County	Questionaires			
	Distributed		Returned	
	Number	%	Number	%
Grad Zagreb	62	40	25	38
Zagrebačka	12	8	8	12
Krapinsko-zagorska	33	22	13	20
Požeško-slavonska	1	1	1	1
Bjelovarsko-bilogorska	4	3	3	6
Splitsko-dalmatinska	9	6	3	6
Istarska	1	1	1	1
Međimurska	8	5	3	6
Karlovačka	2	1	2	3
Koprivničko-križevačka	1	1	1	1
Varaždinska	9	6	2	3
Vukovarsko-srijemska	4	3	1	1
Zadarska	2	1	1	1
Osječko-baranjska	1	1	1	1
Sibensko-kninska	1	1	0	0
Total	150	100	65	100

Questionnaires were returned by 65 (43%) small enterprises, 5 of which were not valid. The data from 60 valid questionnaires were processed and analysed. The structure of distributed and returned questionnaires according to Counties is depicted in Table 1.

Out of 60 small enterprises, 33 (55%) small enterprises were founded 11 to 20 years ago, 10 (17%) small enterprises were founded less than 5 years ago, 10 (17%) were between 5 and 10 years old and 6 (10%) were between 21 and 30 years old. Only one small enterprise was founded more than 30 years ago.

Questionnaires were filled out by respondents/small enterprises from various business activities: 16 (27%) were in wholesale and retail trade; 15 (25%) provided business services; 10 (17%) were in the manufacturing; 4 (7%) were in constructing, 2 (3%) in agriculture, hunting and forestry; and 13 (22%) from other business activities.

The average number of employees at the end of 2010 was ranged from 1 to 49. Out of 60 small enterprises, 38 (63%) had between 1 and 9 employees. 19 (32%) had between 10 and 29 employees and 2 (3%) had from 30 to 39 employees. Only one small enterprise had between 40 and 49 employees.

Out of 60 small enterprises, 52 (87%) had total revenues under 10 million HRK, 5 (8%) between 10 and 30 million HRK and 3 (5%) over 30 million HRK.

Out of 60 small enterprises, 35 (58%) financed business activities by their own capital, 8 (13%) by own capital and short-term loans, 9 (15%) by own capital and long-term loans and 7 (12%) by own capital, short-term and long-term loans. One respondent/enterprise did not answer this question.

The value of long-term assets on December 31, 2010 was under 7 million HRK in 51 (85%) small enterprises, and between 7 and 37 million HRK in 9 (15%) of enterprises.

The questionnaire was filled in by 27 (45%) owners – managers of small enterprises, by 9 (17%) financial managers, 10 (15%) general managers, 8 (13%) business owners and by 6 (10%) sales managers.

Out of 60 respondents, 30 (50%) of respondents have been working on their current jobs for up to 10 years, 21 (35%) between 10 and 20 years and 8 (13%) for over 20 years. One respondent did not answer this question.

As for educational background, 33 (55%) of respondents had a university degree, 9 (15%) a 2-year post-secondary school degree and 18 (30%) a secondary-school degree. When it

comes to age, 14 (23%) respondents were under 30, 30 (50%) were aged 30-50 and 16 (27%) were over 50.

The respondents' answers about the number of computers showed that 37 (62%) of small enterprises own 1 to 5 computers, 17 (28%) own 6 to 10 computers and 6 (10%) own more than 10 computers.

In 48 (80%) of small enterprises all the computers were connected to the Internet, in 8 (13%) a major part of computers were connected to the Internet, whereas in 4 (7%) of them only a few of them were.

Table 2. Evidence of formal education for ICT use

Description	No.	%
1 Self-study	31	52%
2 Vocational education	5	8%
3 Employment Agency	0	0%
4 In-house courses	4	7%
5 Courses in specialized organization	6	10%
1 & 2	3	5%
1 & 3	1	2%
1 & 4	3	5%
1 & 5	6	10%
2 & 5	1	2%
Total	60	100%

In 31 (52%) small enterprises the employees gained no formal evidence of education to use ICT. Their ITC literacy was based only on self-study. In 5 small enterprises (8%) they attended classes during the vocational education, in 4 (7%) small enterprises the employees attended the in-house courses and in 6 (10%) small enterprises they attended courses in specialized organizations. The combination of self-study and vocational education was evidenced in 3 (5%), of self-study and by the Employment Agency in 1 (2%), of self-study and in-house courses in 3 (5%), of self-study and courses in specialized organizations in 6 (10%) and of vocational education and courses in specialized organization in 1 (2%) small enterprise. None of the employees gained the formal evidence of education to use ICT by the Employment Agency solely. Evidence of gaining formal education for ICT use is depicted in Table 2.

Out of 60 small enterprises, 31 (52%) cover the ICT education fees for their employees from time to time. 19 (32%) do that only in exceptional cases and 10 (17%) cover the fees for those who ask for it.

In 2 (3%) small enterprises the employees had the ECDL certificate; in 4 (7%) they had licenses for network resources management; in 2 (3%)

licenses for the information system security management; whereas no one had the EUCIP certificate. In 2 (3%) small enterprises the employees had the ECDL and other evidence; in 2 (3%) network resources management and IT system security management license; in 1 (2%) network resources management license and other evidence. In 46 (77%) small enterprises the employees had only some other evidence. One respondent/small enterprise did not answer this question, as depicted in Table 3.

Table 3. ICT Certificates and licenses

Description	No.	%
1 ECDL Certificate	2	3%
2 EUCIP Certificate	0	0%
3 Network resources management license	4	7%
4 IT system security managemet license	2	3%
5 Other evidence	46	77%
1 & 5	2	3%
3 & 4	2	3%
3 & 5	1	2%
No answer	1	2%
Total	60	100%

The employees of small enterprises most frequently used a combination of 3,5 general tools per employee: the word processors (43); database query tools (41); spreadsheets; (40); presentation tools (32); file handling tools (30); record management tools (17), something else – was not specified (5).

Most frequently used web site tools and services as a combination were: e-mail (59); web search tools (51), content database tools (48); electronic payment (47), database scanning tools (43); own web site (40); social networks (23); electronic signature (16); video and teleconferencing tools (12) and discussion groups (8).

Computers were used for activities in several business functions, mostly as a combination in 2 to 9 functions in one enterprise. The survey indicated that 55 small enterprises used computers in finance and accounting department, 46 in sales department, 45 in purchasing department, 36 in marketing department, 33 in human resources department, 32 for personal purposes, 22 in production, 22 in management as a decision making support and 3 for something else – it was not specified. The use of computers in business function is depicted in Fig. 1.

The planned annual budget for the investment in ICT amounts up to 2% of total revenues in 39 (66%) small enterprises, in 19 (32%) from 2% to

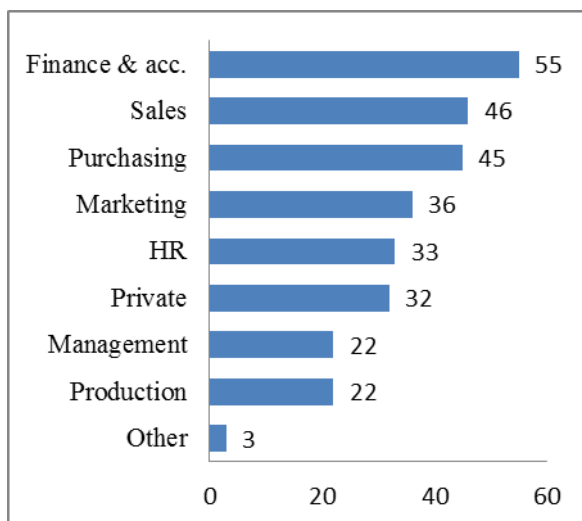5% and in only one (2%) enterprises it amounts to more than 5%.

Figure1. The use of computers in business functions

Out of all respondent surveyed, 33 (55%) respondents answered that they do not plan to increase the number of computers, whereas 27 (45%) planned to do it in the following year. 31 (52%) small enterprises did not plan to connect to the broadband internet, 29 (48%) planned to do it. One enterprise was on the broadband already. 39 (65%) respondents/small enterprises said that they had no intention to switch from the fixed to the wireless communications, whereas 21 (35%) intended to do so. In one enterprise wireless communication already existed. 36 (60%) of small enterprises had no plans to organize education and certification for the employees, whereas 24 (40%) of them did have plans.

As for the information system security, the respondents were asked to indicate how the data was safeguarded in their enterprise. In 31 (52%) small enterprises there was the established information system security policy and in 29 (48%) a lack of any security policy was reported. There was a person in charge of information system security in 26 (43%) small enterprises, whereas in 34 (52%) there was nobody in charge. The methods for monitoring the information system security risks were not defined in 44 (75%) small enterprises, whereas they were defined in 16 (25%) of them. 30 (50%) respondents reported that they had the built-in procedures for reducing information system security risks, whereas 30 (50%) of them said that they did not have any.

The respondents' answers about the application of measurements for ICT risk reduction showed that most commonly applied are: antivirus software (60); compulsory use of password when logging in (38); electronic signature (13); ban on the use of network services for private purposes (6); and encryption (6). There was no ban on sending attachments with the e-mail messages in any of the small enterprises.

Analysis of the respondents' answers to the question on the benefits of ICT use: lower operating costs; more efficient internal communication; more efficient accounting and budgeting practices; more simple administrative procedures; introduction of E-payment based on E-commerce; improved collaboration with customers; improved collaboration with suppliers; and higher quality of products and/or services was based on computed mean, mode, median, variance and standard deviation.

Based on the computed mean of all the benefits of ICT use, the order of the significance of each benefits is: improved collaboration with customers 3,83 ($\bar{x}$ = 3,83); improved collaboration with suppliers 3,37 ($\bar{x}$ = 3,73); more efficient accounting and budgeting practices 3,62 ($\bar{x}$ = 3,62); more simple administrative procedures 3,58 ($\bar{x}$ = 3,58); lower operating costs 3,48 ($\bar{x}$ = 3,48); higher quality of products and/or services 3,33 ($\bar{x}$ = 3,33); introduction of E-payment based on E-commerce 3,22 ($\bar{x}$ = 3,22) more efficient internal communication 3,0 ($\bar{x}$ = 3,0). Based on the score of the mean of each benefit, which is between 3 (3 = to a moderate extent) and 4 (4 = to a great extent) it can be concluded that the use of ICT in small enterprises brings benefits from a moderate to a great extent.

In a more detailed analyze of each benefit some additional conclusion can be made, e.g a detailed analyze of the improved collaboration with customers. The answer that appeared most frequently was 5 ((mode = 5) (5 = to a very great extent)), i.e. the respondents answered most frequently that ICT use had to a very great extent contributed to improved collaborations with customers. Further, 50% of all answers were lower than 4 and 50% of all answers were higher than 4 ((median =4) (4 = to a great extent)), what means that 50% of all respondents answered that the ICT use contributed to improved collaborations with customers to a moderate extent (3= to a moderate extent) to a small extent (2 = small extent) or even not at all (1 = not at all) and 50% of them that it contributed to a very great extent (5 = to a very great extent). The

score of the standard deviation of this benefit is 1,23 (s = 1,23) and of the mean is 3,83 ($\bar{x}$ = 3,83). It means that 41/60 (68%) respondents evaluated the benefit of ICT use in improved collaboration with customers between 3 (3 = to a moderate extent) and 5 (5 = to a very great extent), what indicates a different standpoint of the respondents.

Table 4. The benefits of ICT use – Statistics

Description		Benefit							
		1	2	3	4	5	6	7	8
N	valid	60	60	60	6	60	60	60	60
	missing	0	0	0	0	0	0	0	0
Mean		3,48	3	3,62	3,58	3,22	3,83	3,73	3,33
Mode		4	3	4	4	5	5	4	4
Median		4	3	4	4	3	4	4	3,5
Variance		1,24	1,97	1,89	1,26	1,94	1,53	1,62	1,72
Standard deviation		1,11	1,40	1,09	1,12	1,39	1,23	1,27	1,31

1 = Lower operating costs
2 = More efficient internal communication
3 = More efficient accounting and budgeting practices
4 = More simple administrative procedures
5 = Introduction of E-payment based on E-commerce
6 = Improved collaboration with customers
7 = Improved collaboration with suppliers
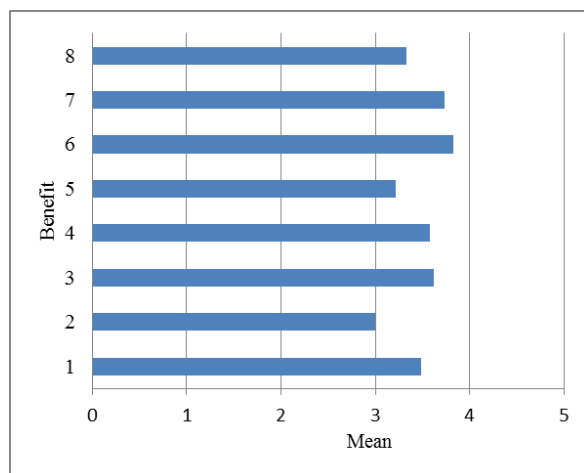8 = Higher quality of products and/or services

Figure 2. The computed mean of each benefit

The computed scores of the mean, mode, median, variance and standard deviation of the benefits of ICT use are depicted in Table 4. The computed mode of each benefit of ICT use is depicted in Fig. 3.

Analysis of the respondents' answers to the question on typical obstacles to ICT use: high costs of development and maintenance of IS; dependency on external ICT experts; skepticism about ICT; low level of IS security; limited funding for the investment in ICT; frequent breakdowns of the equipment and failures of IS;

and insufficient knowledge about the benefits of ICT and about how to work with ICT was also based on the computed mean, mode, median, variance and standard deviation.

Based on the computed mean of all the obstacles to ICT use, the order of the significance of each obstacle is as follows: limited funding for the investment in ICT 3,1 ($\bar{x}$ = 3,1); dependency on the external ICT experts 3,0 ($\bar{x}$ = 3,0); high costs of development and maintenance of IS 2,87 ($\bar{x}$ = 2,87); insufficient knowledge about the benefits of ICT and about how to work with ICT 2,53 ($\bar{x}$ = 2,53); frequent breakdowns of the equipment and failures of IS 2,23 ($\bar{x}$ = 2,23); low level of IS security 2,11 ($\bar{x}$ = 2,11); and skepticism about ICT 1,83 ($\bar{x}$ = 1,83).

Based on the scores of the mean of each obstacle, which are between 1,83 (2 = to a smaller extent) and 3,1 (3 = to a moderate extent) it can be concluded that the significance of obstacles to ICT use in small enterprises is from small to moderate.

In a more detailed analyze of each obstacle some additional conclusion can be made, e.g a more detailed analyze of the limited funding for the investment in ICT. The answer that appeared most frequently was 4 ((mode = 4) (4 = to a great extent)), i.e. the respondents answered most frequently that the limited funding for the investment in ICT was the most significant obstacle. Further, 50% of all answers were lower than 3 and 50% of all answers were higher than 3 ((median = 3) (3 = to a moderate extent)), what means that 50% of all respondents answered that the limited funding for the investment in ICT was an obstacle to a small extent or even to no extent ((2 = to a small extent) (1 = not at all)) and 50% of them that it was an obstacle to a great or even a very great extent ((4 = to a great extent) (5 = to a very great extent)). The score of the standard deviation of this benefit is 1,22 (s = 1,22) and of the mean is 3,10 ($\bar{x}$ = 3,10). It means that 41/60 (68%) respondents evaluated this obstacle to ICT use from 2 (2 = to a small extent) to 5 (5 = to a very great extent) what indicates different standpoints of the respondents.

The computed scores of the mean, mode, median, variance and standard deviation of obstacles to ICT use are depicted in Table 5. The computed mean of each obstacle to ICT use is depicted in Fig. 3.

Table 5. Obstacles to ICT use – Statistics

Description		Opstacle						
		1	2	3	4	5	6	7
N	valid	60	60	60	60	60	60	60
	missing	0	0	0	0	0	0	0
Mean		2,87	3	1,83	2,11	3,1	2,23	2,53
Mode		3	4	1	1	4	2	3
Median		3	3	2	2	3	2	3
Variance		1,17	1,39	0,82	0,88	1,48	0,73	1,41
Standard deviation		1,08	1,17	0,90	0,94	1,22	0,85	1,19

1 = High costs of development and maintenance of IS
2 = Dependency on the external ICT experts
3 = Skepticism about ICT
4 = Low level of IS security
5 = Limited funding for the investment in ICT
6 = Frequent breakdowns of the equipment and
　　failures of IS
7 = Insufficient knowledge about the benefits of ICT
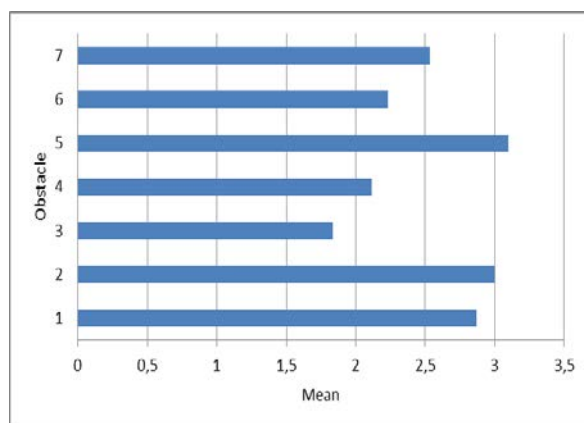　　and about how to work with ICT

Figure 3. The computed mean of each obstacle

6 Conclusions

The main purpose of the current study was to determine the role of ICT in small enterprises in Croatia. The results of the survey have certain limitation due to the nonprobability sampling method and small convenient sample size, which is not an accurate representation of the population. The results cannot be generalized to the population of small enterprises in Croatia as a whole. The findings that emerge from this study are more indicative for the population of small enterprises from the City of Zagreb, Zagreb County and Krapina-Zagorje County, as the majority (70%) of the questionnaires was distributed to small enterprises in this part of Croatia. The findings show that 55% of the surveyed small enterprises were between 11 and 20 years old, 52% were from

the trading and service industries, 63% had between 1 and 9 employees, i.e. they are classified as micro enterprises. Total revenues in 2010 were under 10 million HRK for 87% of enterprises, 60% used only their own sources of funding, the value of long-term assets in 85% of enterprises was under 7 million HRK, 53% of the respondents have been in their present jobs for up to 10 years and 75% of the respondents were either owners-managers or general managers or owners, i.e. represented the top level of management. The findings concerning the ICT are as follows:

- All small enterprises have personal computers and connection to the Internet, and in 80% of enterprises all the computers are connected to the Internet.
- The employees of small enterprises have almost no formal evidence of ICT education. They are mainly trained through self-study; sometimes they attend courses organized by specialized companies. An in-house training is very rarely organized.
- Small enterprises sometimes/when necessary participate in covering the ICT education costs for their employees.
- The majority of employees do not have an ICT certificate and they are better at using the network tools and services than at using general tools.
- In small enterprises computers are mainly used for activities in business functions such as finance and accounting, sales, purchasing and marketing, as well as for internal and external communication.
- The planned annual budget for investment in ICT is low; it amounts up to 2% of total revenues in 66% of small enterprises.
- A half of small enterprises have no plans either to buy any new computers or to connect to the broadband internet or to switch from cable to wireless communications.
- Small enterprises have established ICT security policy, they use tools for ICT risk reduction, and they all use at least antivirus software.
- The use of ICT within small enterprises has contributed to benefits, mostly related to the improved collaboration with customers and the improved collaboration with suppliers, as well as to more efficient accounting and budgeting practices. Small enterprises also recognized some obstacles to ICT use, mostly related to the

limited funding for the investment in ICT and dependency on the external ICT experts.

In order to generalize the conclusions to the entire population of small enterprises in Croatia, authors suggest an extended survey on this issue, i. e. conducting the survey on a random sample of a proper size.

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