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## Managers' perceptions of the role of ICT in rural tourism firms efficiency: The case of Slovenia

### Abstract

In the paper, results of a field research among managers working in Slovene rural tourism SMEs are presented. A questionnaire was developed and employed to measure their perceptions of the ICT influence on their firms' efficiency. The correlation analysis results showed that the most important factor affecting firms' revenue growth, profitability, organizational climate and customers' satisfaction are perceived benefits from ICT use. Expectedly, younger and more educated managers, as well as those operating in firms with more employees, perceive the role of ICT as more important than their older and less educated counterparts. Furthermore, it was established by linear regression analysis, where a composite performance indicator was used as dependent variable, that perception of the ICT benefits and ICT skills significantly positively affect the firms' performance. The results may present a valuable information for decision-makers when preparing strategies and plans for rural tourism development, investments in ICT infrastructure, for specific promotional actions, and education programs development.

**Key words:** rural tourism; efficiency; ICT; SME; Slovenia

### Introduction

Rural tourism is a special form of tourism, which is characterized by natural environment and distance from urban areas (Clarke, Denmanb, Hickmanc & Slovak, 2001). The latter brings to the suppliers several operating hindrances and higher operating costs (Malecki, 2003). This notwithstanding, tourism economic activity is an important generator of development in rural areas (Briedenhann & Wickens, 2004). Roberts and Hall (2001) estimated that tourism in rural areas already some 15 years ago represented 10-20% of all tourism activity. According to Ehrlich (2014) European rural tourism was accountable for 15% of total bed capacity. This type of small-scale tourism undoubtedly presents a strong potential also for Slovenia. Its hinterland is characterised by hilly landscape, low land ownership concentration, traditionally extensive farming, small and fragmented farms and therefore rural tourism is indispensable for its future development. According to Cigale, Lampič and Potočnik Slavič (2014), there are 1,120 tourist farms, which represents 1.6% of all farms in Slovenia.

Despite the facts that for hinterland tourism firms is almost impossible to achieve economies of scale and that they have relatively high operating costs due to their remoteness it is important that they operate efficiently and effectively in order to be competitive. Efficiency is one of the central concepts in economics. In production context, efficiency is understood as performance of firms, which convert

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inputs - a given combination of factors - into outputs (Coelli, Rao, Donell & Battese, 2005). These factors may vary from industry to industry, as may vary outputs or performance indicators. Rural tourism SMEs' products and services are very heterogenic, therefore, informal definition that "efficiency is the quality of producing a set of desired effects" (Färe, Grosskopf & Lovell, 1985, p. 1) seems to be well-chosen for this specific economic area. These effects may be measured in terms of financial indicators or by qualitative measures.

With the help of ICT rural areas can achieve better visibility, communication, integration into economic and tourism flows, marketing of products and services and finally better quality of life for the local population. Furthermore, ICTs allow reduction of the production costs, increased productivity, they boost efficiency and effectiveness and have positive impact on performance, growth, and development of new products (Barba-Sánchez, Martínez-Ruiz & Jiménez-Zarco, 2007; Consoli, 2012; Shanker, 2008).

So far, however, there is only a very limited empirical evidence on which factors of ICT are believed to affect the performance/efficiency of tourism firms in rural areas from managers' perspective and to which extent (e.g. Peña & Jamilena, 2009). The aim of our research was therefore to investigate how managers perceive the ICTs influence on the efficiency of micro firms operating in the field of rural tourism.

## Methodology

The field research was carried out between December 2014 and March 2015, which is considered to be the low season in tourism. The invitation with a link to the web survey was sent via e-mail to 2600 entities (the whole census) identified as "rural tourism businesses". Beforehand, a modified Delphi method was used to reach a consensus on operative definition of "rural" and on which businesses should be included in our research. In line with the results (Kociper, Planinc, Sedmak, Planinc & Brezovec, 2015), business entities registered within 35 subsectors from Standard classification of activities 2008 that were not registered in 10 biggest Slovenian towns were taken in consideration. An additional filter used was the answer to the question: "Would you consider yourself as coming from rural, semi-rural or urban area?" Business entities contacts were acquired from the publicly available registry. In order to improve the response rate sent two reminders were sent via e-mail.

A response from 191 units was achieved including: farms selling their products (20.5%), hospitality firms (63.1%) and others - tourism attractions, active recreation sites etc. (16.4%). The comparison between the sample and the population showed no significant bias. Among respondents there were more male (58.6%) than female (40.8%). The largest age group was between 41 and 50 years (34.6%) and the largest group concerning education was completed secondary school (39.8%). Along the collection of the usual socio-demographic data, the measure of perceptions utilised five-point Likert-type scale, ranging from 1 (strongly disagree) to 5 (strongly agree).

Based on the literature review (Antončič & Hisrich, 2004, Haber & Reichel, 2005, Hallak, Assaker & O'Connor, 2014), a questionnaire was prepared with two sets of statements. The first aimed to determine entrepreneurs' familiarity with ICT and how they perceive benefits from ICT usage in their business, and the second to measure perceived efficiency/performance. Hallak et al. (2014) measured SMTE performance by entrepreneur's self-assessment of how his/her business had performed in terms of profitability, sales, growth and achieving expectations. Haber and Reichel (2005) developed a conceptual model of small-venture performance and identified performance measures in a service industry. This model includes objective and subjective dimensions. In current study long-term (3 years) subjective

measures were used as in Slovenia most micro-firms operating in rural tourism do not analyse their technical efficiency and do only basic accounting. Thus, our work relied on self-reported, perceptual measures from managers/owners regarding their satisfaction with different aspects of performance, assuming that performance is a consequence of high level of efficiency (as defined by Färe et al., 1985). The scale used has been previously used and validated in the context of tourism enterprises by Hallak, Brown and Lindsay (2012).

Statements denoting use and familiarity with of ICT were:

1. "I have enough ICT skills for my job" (for measuring ICT human resource skills) – variable *SKILLS*,
2. "Benefits from ICT are bigger than the loss of time and money" (for measuring perceived benefits from ICT) - variable *BENEFITS*, and
3. "I follow my competition via Internet" (for measuring the level of use of ICT for market analysis) – variable *MARKET ANALYSIS*.

and statements measuring performance were:

1. "I am satisfied with the revenue growth in the last three years" – variable *REVENUE GROWTH*,
2. "I am satisfied with profitability of the company in the last three years" – variable *PROFITABILITY*,
3. "I am satisfied with the potential for future growth" – variable *POTENTIALS*,
4. "We have good organizational climate and employees are satisfied" – variable *CLIMATE* and
5. "I believe our customers are satisfied" – variable *CUSTOMER'S SATISFACTION*.

Of course, it was expected that enterprises in which ICT plays greater role are more efficient (perform better).

A non-parametric correlation analysis (Spearman's coefficient) and stepwise linear regression method were used for analyses. For the latter, also a composite dependent variable was formed in which statements for measuring the performance were summed up. Three cases were excluded from the analysis in this stage due to missing values. Cronbach's Alpha coefficient 0.83 proved fair reliability of the developed composite performance indicator and Skewness and Kurtosis tests showed no violation of normality of distribution assumption (values -0.14 and -0.08). Pearson correlation coefficients between the statements' values ranged from 0.33 to 0.83.

## Results

As shown in Table 1 respondents believed to have a bit above average ICT skills. They agreed that benefits from ICT are bigger than losses and they follow their competition via Internet quite often.

Table 1  
The degree of agreement with statements on the role of ICT

Statements	Response rate		Response					Descriptive statistics	
	Valid (N)	Missing	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean	Std. dev.
Skills	188 98.9%	2 1.1%	3 1.6%	31 16.5%	103 54.8%	39 20.7%	12 6.4%	3.14	0.82
Benefits	190 100%	0 0%	9 4.7%	17 8.9%	76 40%	71 37.4%	17 8.9%	3.37	0.94
Market analysis	189 99.5%	1 0.5%	1 0.5%	22 11.6%	60 31.6%	95 50%	11 5.8%	3.49	0.80

In Table 2 correlations between the values of the two groups' statements are shown. Mostly, correlations were rather weak but they were statistically significant and positive, as expected. Therefore, the greater implementation of ICT in business indicates the greater business efficiency.

Table 2  
Correlations between statements regarding ICT and performance

Statements		Skills	Benefits	Market analysis
Revenue growth	Spearman's rho	0.184*	0.251*	0.057
	Sig. (2-tailed)	0.012	0.001	0.438
	N	187	187	186
Profitability	Spearman's rho	0.113	0.155*	0.066
	Sig. (2-tailed)	0.122	0.034	0.370
	N	188	188	187
Potentials	Spearman's rho	0.265*	0.261*	0.195*
	Sig. (2-tailed)	0.000	0.000	0.008
	N	188	188	187
Climate	Spearman's rho	0.146*	0.192*	0.044
	Sig. (2-tailed)	0.045	0.008	0.546
	N	188	188	187
Customer's satisfaction	Spearman's rho	0.121	0.245*	0.016
	Sig. (2-tailed)	0.099	0.001	0.825
	N	186	186	185

\* Correlation is significant at the 0.05 level.

The results show that the most important factor affecting the performance are perceived benefits from ICT use. This variable is significantly and positively correlated with all statements measuring performance.

Additionally, comparisons between sub-segments of entrepreneurs were made. Stemming from the literature review (Leatherman, 2000; Milne, Mason, Roberts, Nodder, Ateljević & Cameron, 2005) it was expected that younger, more educated managers and those operating in more complex business systems tend to use ICT more efficiently. Due to relatively small sample only two groups for each variable were formed - in such a way that the cut-off value split the sample into two comparable parts. For all of three variables some differences were detected in the correlations between the perception of the ICT benefits and statements measuring the performance, confirming our expectations. Correlations were stronger in the groups of younger (up to and including 45 years) and better educated (more than high school) entrepreneurs operating in firms with more than one employee. The statistically significant results are shown in Table 3.

Table 3  
Comparison between segments of entrepreneurs

Benefits from ICT according to groups of entrepreneurs			Revenue growth	Profitability	Potentials	Climate	Customer's satisfaction
Age	Up to and including 45 years	Spearman's rho	0.402*	0.284*	0.424*	0.400*	0.261*
		Sig. (2-tailed)	0.000	0.007	0.000	0.000	0.015
		N	87	88	88	88	87
	Over 45 years	Spearman's rho	0.120	0.039	0.110	0.009	0.249*
		Sig. (2-tailed)	0.231	0.707	0.289	0.932	0.015
		N	97	97	97	97	96

Table 3 Continued

Benefits from ICT according to groups of entrepreneurs			Revenue growth	Profitability	Potentials	Climate	Customer's satisfaction
Education	Up to and including high school	Spearman's rho	0.150	0.050	0.194*	0.118	0.166
		Sig. (2-tailed)	0.125	0.606	0.043	0.221	0.088
		N	109	109	109	109	107
	More than high school	Spearman's rho	0.376*	0.261*	0.329*	0.267*	0.322*
		Sig. (2-tailed)	0.001	0.021	0.003	0.018	0.004
		N	77	78	78	78	78
Number of employees	One	Spearman's rho	0.249*	0.189	0.257*	0.201	0.150
		Sig. (2-tailed)	0.025	0.091	0.021	0.072	0.187
		N	81	81	81	81	79
	More than one	Spearman's rho	0.254*	0.138	0.299*	0.215*	0.327*
		Sig. (2-tailed)	0.009	0.158	0.002	0.026	0.001
		N	106	107	107	107	107

\* Correlation is significant at the 0.05 level.

Furthermore, a linear regression model was used to test the performance dependency from the implementation of ICT in business. The results turn out to be statistically significant (sig. = 0.000) with expected positive signs, however, with low explanatory power (adjusted  $R^2 = 0.125$ ).

$$PERFORMANCE = 11.210 \text{ (std. err. 1.18, sig. = 0.00)} + 1.162 \text{ (std. err. 0.25, sig. = 0.00)} \cdot BENEFITS + 0.693 \text{ (std. err. 0.22, sig. = 0.00)} \cdot SKILLS$$

The composite dependent variable *PERFORMANCE* was formed as the sum of the five statements measuring performance. Perception of the ICT benefits and ICT skills significantly positively affect the performance.

## Conclusion

The results obtained are in line with theory and previous studies findings on ICT and efficiency (Barba-Sánchez et al. 2007; Consoli 2012). As expected, the analysis revealed positive correlation between perception of benefits from ICT use and firms' performance, including potentials for growth and further development, as well as in terms of a positive impact on organizational climate. The main value of the research is in getting the insight into the perceptions of a specific segment of managers regarding the matter in question. As they mostly operate as self-employed persons (in hospitality micro firms) and in tourism farms with a special status (which may operate as businesses) their knowledge and usage of ICT differs from those of managers in "regular" firms.

Low explanatory power and low correlation coefficients, which presents one of the limitations of the research, can be explained with the fact that ICT is only one of factors having an impact on efficiency. Besides, there obviously exist some differences between the sub-samples. Younger and more educated respondents seem to perceive the role of ICT as more important.

Next limitation is that there are no hard measures, such as financial indicators, available for Slovene rural tourism firms. Furthermore, owing to time and financial constraints a decision was made to rely on subjective assessments of customers' satisfaction. Different perceptions among respondents may, of course, cause some bias. On the other hand, according to Haber and Reichel (2005), "desired effects"

may be measured in terms of financial indicators or in qualitative measures, such as customers satisfaction, perceived quality of products, competent and committed employees etc.; these performance indices may include objective and subjective dimensions.

The results may present a valuable information for decision-makers when preparing strategies and plans for rural tourism development, investments in ICT infrastructure, for specific promotional actions, and education programs development. For the future, surveys on which ICT tools entrepreneurs use and how often is suggested. With annual monitoring, the dynamics of ICT adoption and changes in perceptions of the role of ICT in rural areas could be followed which would enable identification of major hindrances for implementing ICT in rural areas firms.

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