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ICT INFRASTRUCTURE USED IN RURAL ACCOMMODATIONS IN CLUJ COUNTY, ROMANIA

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ABSTRACT. The recent advances in Information and Communication Technologies have led to important changes in the production and distribution of tourism services. Using the Internet the accommodation establishments from rural areas can promote their services more easily to a wider audience but, on the other hand, they have to compete to the accommodation units worldwide. Considering the growing importance of ICT in tourism this paper attempts to identify the ICT infrastructure used in rural touristic boarding houses in Cluj County, Romania. Further, it is also aimed to highlight the influence of ICT on innovation in rural tourism. The paper ends with a discussion of the findings and some suggestions to get these businesses involved in information age.

Key words*: rural tourism, accommodation, ICT infrastructure, innovation, guest house.*

JEL Classification: M15, L86, L83.

1. Introduction

While the rapid growth of information and communication technologies (ICT) usage and on-line travel and reservations systems dominate the field of tourism marketing and communication, the tourism industry in practice is both fragmented and represented by a large number of small enterprises (Evans and Parravicini, 2005). European tourism is largely a SME-dominated sector with over 99 percent of firms

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employing fewer than 250 individuals (Coetzer, 2001). Also, at the global level, the vast majority of the accommodation establishments are small and medium sized enterprises (Buhalis and Main, 1998). Contrary to their importance in the economies, small and medium sized hotel enterprises suffer a wide range of strategic disadvantages and weaknesses preventing them from a sustainable development and yielding desired outcomes (Yolal et al., 2006).

Further, Murphy (2005) asserts that the lack of technology infrastructure for small and medium sized hotel enterprises, the inherent characteristics of these firms and their managers, the inability of key stakeholders to cooperate, coordinate and make progress and the lack of funding all played key roles in impeding the adoption of technology in this sector. Furthermore, a major risk is that many rural tourism SMEs remain marginalized in the adoption of ICT, or receive inappropriate advice and support for ICT applications that they are not able to fully exploit and from which they are unable to derive sustained benefit (Evans and Parravicini, 2005).

As such, this paper aims to identify the level of ICT use by the accommodation units in the rural areas of Cluj County. For the purpose of the study, the paper initially reviews the relative literature on ICT for tourism, SMEs and rural accommodation. Further, the results of a survey on the use of ICT in rural accommodation units in Cluj County are presented. The paper ends with a discussion on the findings of the survey.

2. Literature Review

Information technologies have become an important tool in the production and distribution of services. The recent advances in Information and Communication Technology (ICT) have implications in all fields of activity, especially in tourism. The use of new ICT in this sector has a number of advantages such as: information is shared and disseminated to larger audience; knowledge is produced at lower costs; the constraints of distance and geography are overcome; development of distribution channels (Shanker, 2008). Using the Internet the customers and suppliers of tourism services are able to share information across different regions of the world. Technology allows hotel enterprises to have a competitive advantage and a strategic weapon owing to pivotal role information plays

in the description, promotion, distribution, amalgamation, organization and delivery of tourism products (Poon, 1993; Sheldon, 1997). Tourism is acknowledged to be very information intensive; in fact, information has been described as the 'lifeblood' of the industry (Sheldon, 1993).

Tourists need information before going on a trip to help them plan and choose between options, and also increasingly need information during the trip as the trend towards more independent travel increases (O'Connor, 1999). On the other hand, tourists tend to be more informed and experienced and they have the opportunity to access abundant information sources such as Internet and mobile applications. As such, they are wiser about the available information sources and they frequently use technologies for gathering information on their travel plans. Further, the amount of touristic information is continually growing due to increasing competition experienced among the destinations, attractions and the tourist services. Consequently, tourists can search text information, images, and videos, and can compare or experience the places taking virtual tours. With mobile devices such as smartphones and tablet PCs, users can run augmented reality applications which allow them to see "additional virtual information overlaid on top of the real-world camera view through virtual annotations" (Yovcheva et al., 2012: 63).

The key to successful and efficient management of any organization, not just in the hotel industry, lies in the utilization of information and in the ability to access available information and manipulate the information to the advantage of the business (Murphy, 2005). According to Buhalis (1996), technology provide unprecedented opportunities for the coordination of tourism SMEs at the local level; enabling SMEs to provide seamless tourism products in order to enrich the total customer satisfaction; enhancing business efficiency; and empowers organizations with economies of scope. Besides, the Internet has opened the door for small businesses with little capital to reach a worldwide market. In the opinion of Dargan and Prosser (2001) tourism SMEs are often characterized by inadequate education and training, ignorance of modern management and marketing techniques, lack of strategic planning, financial weakness, lack of economies of scale, low bargaining power and poor infrastructure. Small businesses have generally been slower to embrace new technology and have been more risk-averse than the tourism sector as a whole (Morrison and King, 2002).

The term *rural* is frequently associated with "words and/or phrases like *the minority, the underserved areas*, *the economically disadvantaged*" (Akca et al., 2006: 405). Rural tourism is defined as "tourism that takes place in rural areas, motivated by tourists' desire to understand this way of life and come into contact with nature (Nieto et al., 2011). Statistics on ICT usage by country (International Telecommunication Union Statistics, Akamai's "State of the Internet" report, Internet World Stats, etc.) can be found easily but information about the use of ICTs by households, individuals or enterprises in rural areas are not available yet. Due to the lack of information in this field a number of studies were carried out.

Buhalis and Main (1998) tried to identify the factors which will enable peripheral small and medium-sized hospitality enterprises to incorporate ICTs in their strategic and operational management. They argue that small and medium sized hotel operations which fail to adapt and utilize ICT will suffer competitive disadvantages and jeopardize the prosperity of destinations. As such, the public sector, as a stakeholder, increasingly appreciates the benefits introduced by ICTs and undertakes initiatives to assist small and medium sized hotel operations to take advantage by improving their equipment and by formulating networks.

Deakins, Mochrie and Galloway's research is focused on the use and impact of ICTs on rural small and medium size firms (SMEs) from rural Scotland. The results of this study suggest that rural businesses have high rates of adoption of ICTs and that the forum membership has an influence on the use of ICTs. The SMEs that are more profitable, more innovative and more oriented towards international markets are more likely to be members of Internet forums (Deakins et al., 2004).

Another study conducted also in rural Scotland, by Galloway, Sanders and Deakins (2011), compared and contrasted the perceptions of six rural internet portal operators with 96 of their rural small business users. The most important benefits of portal membership perceived by clients were: increased profile, increased profits, increased sales, access to local markets and access to external markets (Galloway et al., 2011). Evans and Parravicini (2005) identified the main determinants of ICT adoption by tourism SMEs in Aragon, Spain: size by number of employees, the influence of owner, key staff and network membership, touristic market and location. Barriers in ICT adoption among small and medium tourism enterprises are: high cost of ICTs and limited funds (Migiro and Ocholla, 2005).

From previous studies on ICT adoption by rural accommodation and a study developed by Reino, Frew and Albacete-Saez (2010) which examine the differences in the level of inter-firm technology adoption between rural and urban accommodation establishments in Scotland. This study reveals that the level of ICT adoption by the establishments located in rural area is lower compared with the level of technology adoption of those situated in urban areas. Nieto, Hernández-Maestro and Muñoz-Gallego (2011) analyzed the relationship among entrepreneurial talent, website characteristics and business performance in rural tourism establishments in Spain. The conclusions of this study are: there is no relationship between entrepreneurial talent and website characteristics, entrepreneurial talent does not lead to better Web content and the relationship between entrepreneurial talent and performance is not confirmed for the whole sample (Nieto et al., 2011).

In Romania we can find a number of studies on the use of ICTs in SMEs but these studies are not focused on rural tourism. Negrusa and Gica (2010) studied the use of ICT in Romanian companies, with a focus on Transylvanian SMEs. The results of this study showed that the SMEs from service field were more orientated toward new ICTs comparing with those from production.

3. Material and method

As we mentioned earlier, this paper aims to identify the level of ICT used by the rural accommodation units in the rural areas of Cluj County. Initially, it should be noted that this study is a part of a broader research on innovation in rural accommodation. In order to obtain the information from the owners of the rural accommodation units situated in Cluj we designed a questionnaire which was administered using face-to-face interview method.

The touristic chalets, touristic guest houses and agro-touristic guest houses were included in the study. We selected only businesses which were active in rural tourism, located in villages. The accommodations situated on/across national roads and the accommodations with occasional activity were excluded from the study. In order to obtain a representative sample of the population we defined a profile considering the following characteristics: geographical location, category and the size of the accommodation unit. For identifying the accommodation establishments from Cluj, the database

with the Romanian classified tourism accommodation structures from the Ministry of Regional Development and Tourism's Website was used. This yielded a total of 97 accommodation units. The database was imported in Microsoft Access and using queries the following results were obtained: 54 units out of 97 accommodations in Cluj rural area were found to be touristic boarding houses, 40 units were agro-touristic boarding houses and 3 units were touristic chalets. By geographic location 20 rural accommodation units where situated on national roads or in proximity of the urban areas and we considered that these guest houses where not focused on rural tourism. Another important aspect is that 40 accommodation units (41.24% of the total number of rural accommodation in Cluj) are situated in Sâncraiu village and are part of a rural tourism network coordinated by a travel agency – Davincze Tours (Toader et al., 2012).

Data for this study were gathered between June and August 2012. We contacted 38 accommodation units and the total number of completed questionnaire was 26 (68.42% response rate).

We analyzed also the data provided by the National Institute of Statistics (NIS) related to the number of establishments of touristic reception with functions of touristic accommodation, by county. As it can be observed from Fig. 1, Cluj County is on the third place by the number of agro-touristic boarding houses, with a total number of 113 agro-touristic boarding houses.

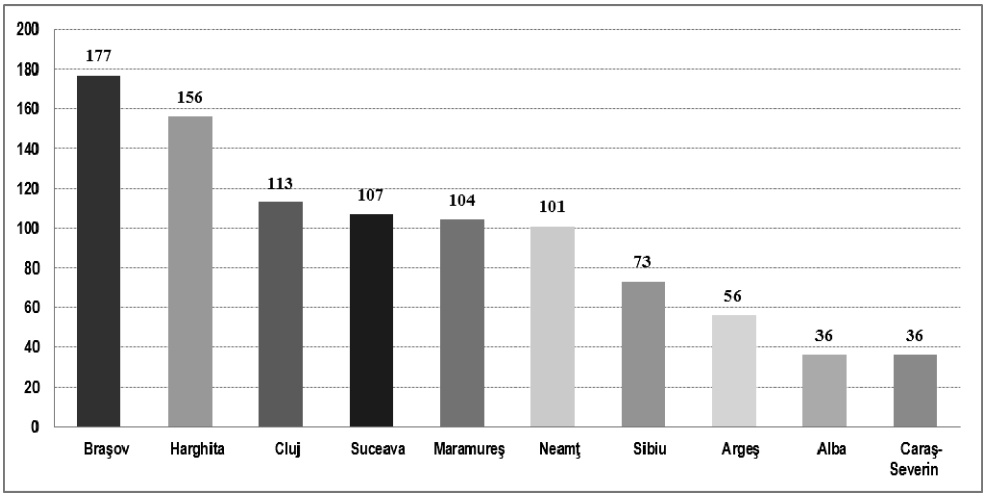

Fig. 1. Number of agro-touristic boarding houses by county, 2010

Source: realized by the authors based on Romanian Statistical Yearbook, 2011

We should mention that in the statistics provided by NIS, starting with 2009, urban touristic boarding houses were defined as touristic boarding houses and rural touristic boarding houses were defined as agro-touristic boarding houses. An important aspect is that from the top ten counties by the number of agro-touristic boarding houses seven are from Transylvania. We believe that this result is due to the fact that Transylvania is more economically developed comparing with the other regions in Romania. In 2009 there were 89,610 active rural enterprises in Transylvania, registered at the National Trade Register Office (Csata, 2012). This number includes also authorized individuals, family businesses and individual enterprises. In Harghita, Maramureș, Arad, Cluj and Alba counties the number of businesses per 1000 is greater than 25 (Csata, 2012).

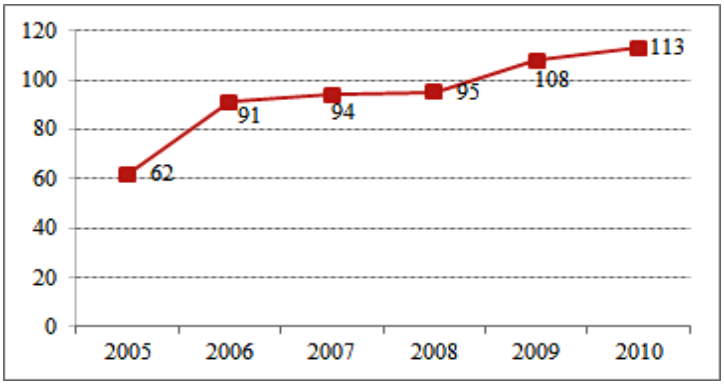

Fig. 2. The evolution of the number of rural touristic boarding houses in Cluj County
Source: realized by the authors based on Romanian Statistical Yearbook, 2006 - 2011

Another issue is that the number of rural touristic boarding houses almost doubled between 2005 and 2010 (Fig. 2). The entrepreneurs began to valorize the potential of rural tourism in Transylvania. The increase in the number of touristic rural business in the recent years can be a result of European and national policies to stimulate the development of rural tourism.

Our study is focused on ICT infrastructure used in rural accommodation sector, therefore we will continue this article with some definitions of the concepts we will operate with. According to the Information Technology Association of America (ITAA) the term IT is used for "the study, design,

development, applications, implementation, support or management of computer-based information systems, particularly software applications and computer hardware" (Encyclopedia of Business and Finance, 2001).

The IT Industry refers to computers but also to telecommunications equipment and includes hardware and software and related services. In recent years the term communication was also included in order to emphasize the importance of communications technologies. Taking into account these definitions the questionnaire was prepared with the following structure:

- hardware infrastructure: the use of hardware (computers desktops, laptops, netbooks, printers, POS dispositive for payments by card, UPS - uninterruptible power supply, touch screen terminals);
- software infrastructure: the use of software applications (office software suites, multimedia software packages and information systems, such as, reservation information systems, accounting information systems, property management systems);
- communication infrastructure: the use of local networks, the existence of an Internet connection, Web presence, e-mail;
- in the final part of the questionnaire we introduced questions related to changes made in ICTs between 2009 and 2011.

4. Results and discussions

Almost three quarters of the rural accommodation units have a computer and more than a half have a printer (Fig. 3). UPS, POS and routers are less used by guest houses and seven of them do not use any type of hardware in their business activities.

In terms of software used by accommodations units, Office Suites are installed in half of the studied units, multimedia processing software are used by three guest houses and transaction processing systems are used only in two guest houses. The Property Management Systems (PMS) and the reservation systems are absent. The records of clients are kept on manual record keeping in most of the cases. A simple table created using a spreadsheet software (i.e. Microsoft Excel) or a database management system (i.e. Microsoft Access) could replace the old record keeping method. There are also a number of Hospitality Information Systems suppliers which offer smaller versions of PMS, customized for touristic boarding houses (i.e. Medallion Lite, innHand Reservation System).

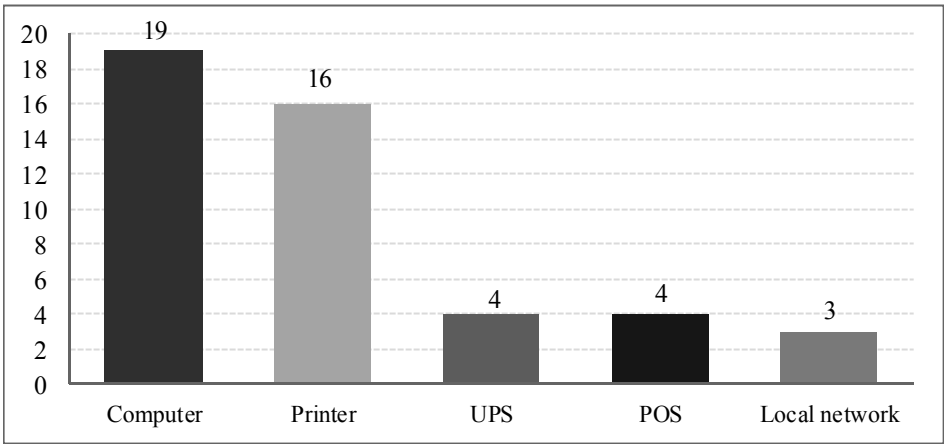

Fig. 3. The use of hardware by rural accommodation

The majority of the accommodation units have a permanent connection to the Internet (20 out of 26). This is the minimum requirement for internet-based applications. In order to be competitive in rural tourism the accommodation units must have a web page and an email account.

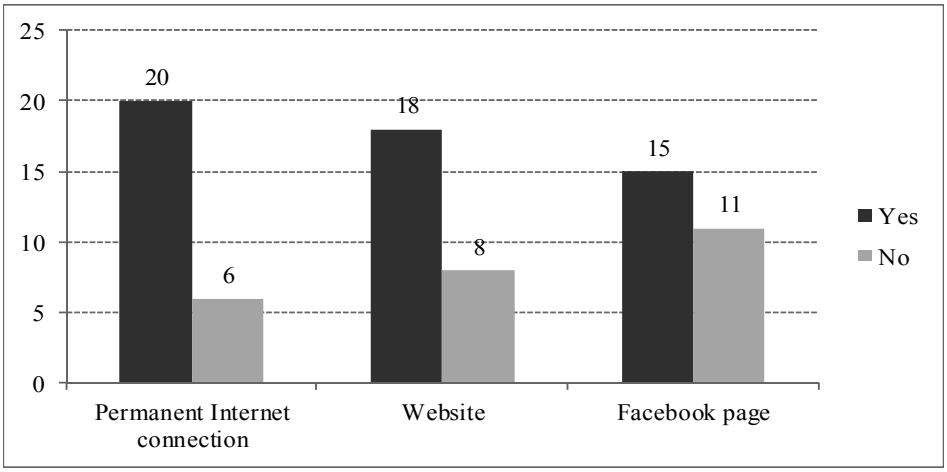

Fig. 4. Internet connection/Webpage/Facebook page

The Internet is an important channel for promoting the rural accommodations to a large worldwide audience that reached, by the end of 2011 (ITU statistics) 2.3 billion people. The web presence is essential

in today's business environment as anyone can create a website, a blog, a forum or a Facebook page with lower costs and development efforts. From the total number of guest houses 18 units have a functional website.

The website was created mainly for promoting their services or products, for allowing the clients to make online reservations and it was not designed for online sales. On average 24% of the reservations are made by guest houses' clients using the online reservation form included on the website.

In order to promote their businesses to international markets 10 guest houses developed an English version of the website, four a Hungarian version and only two a German version. 21 of the rural accommodation units also promote their services on specialized websites (portals) from Romania. The most used tourism portals are: turistinfo.ro, viaromania.ro, carta.ro and cazari.ro. Turistinfo.ro registered in August 2012 a number of 867.147 unique visitors and was the leading site in traffic.ro ranking in tourism category. Booking.com is used by a very small number of the studied accommodation units although the Alexa Traffic Rank for this site is 159 (compared with the rank of turistinfo.ro which is of 26,096).

ICT supports tourists in all phases of a travel experience. Customers can now have access to online distribution channels that were available in the past only for tour operators. Also, they can buy online tourism services directly from the providers, without any intermediaries. Even if the rural accommodation establishments from Cluj are not selling their products or services online they should find a method to facilitate the online payments.

Social media can be used as a promotion tool by rural accommodations. The social web was defined as "the development of the Web 2.0 by people and was forecasted many years ago by visionaries and scientists" (Amersdorffer et al., 2012: 176). In March 2012 Facebook had more than 835 million international users and it was estimated to exceed 1 billion users by the end of 2012 (Internet World Stats, 2012). The interviewed rural accommodation units seem to be aware of the impact of social media adoption. It is found that more than half of the participants in this study have a Facebook page (Fig. 4), but only a few of the Facebook pages are well designed and are regularly updated.

ICT have a positive impact on innovation in tourism activities in rural areas. An innovation is defined as "the implementation of a new or significantly improved product (good or service), or process, a new marketing method, or a new organizational method in business practices, workplace organization or external relations […]. The minimum requirement for an innovation is that the product, process, marketing method or organizational method must be new (or significantly improved) to the firm" (OSLO Manual, p: 46). As described in OSLO Manual (p. 49) the implementation of a new or significantly improved ICT is considered to be a process innovation "if it is intended to improve the efficiency and/or quality of an ancillary support activity". The use of ICTs by the accommodation establishments facilitates the relationship with costumers, with business partners and public institutions.

Between 2009 and 2011 only six accommodation units have introduced a new reservation method or improved the reservation process, eight units have introduced or improved the hardware used in daily activities and only two units have introduced or improved the information systems used by the guest houses. The sources of these changes are: the owners' experience and personal concerns and the clients' observations or requests. In 2009–2011 time span, compared with the beginning of 2009:

- the ICT equipment remained the same in almost half of the businesses (11 units);
- the ICT equipment was partially changed in 6 out of 26 units;
- the ICT equipment was replaced in two guest houses.

For the year 2012, in which the survey was conducted, the participant accommodation units declared that they have not realized any investments in ICT.

It is found that all the respondent accommodation units started their activity after 1998. It is also seen that more than half of the surveyed units were opened in the last five years. As such, it could be concluded that the accommodation units in the rural areas of Cluj County are relatively new in business life.

The businesses are organized as SMEs, family businesses, authorized individuals or individual enterprises. Regarding the characteristics of the business owners it is seen that 57.7 % of the respondents were

female. We don't have sufficient data to conclude that women entrepreneurs predominate in rural tourism, but in the case of family businesses, women were more willing to respond the questionnaire. Women were more communicative and more hospitable than their male counterparts and, for this reason they are in charge with the relationship with clients and also with the guest house administration.

Regarding the ages of the owners, it is found that 3.84% are under 30 years, 23.07% have ages between 30 and 45, the majority of them (61.53%) are between 46 and 60 years old and 11.53% are over 60. The age of the owner could influence the adoption of ICTs by rural guest houses. Most of the owners are middle aged people and they might be reluctant to adopting new technologies, to investing in ICTs.

5. Conclusions

This study attempts to identify the ICT used by rural tourist boarding houses in Cluj County, Romania and to highlight the influence of ICT on innovation in tourism. The results of the study show that rural accommodations in Cluj County have a minimal ICT infrastructure: computers and printers, Office suites and Internet connection. The rural accommodation units from Cluj County are present online through their own website and Facebook page or through the tourism portals. Only a few of them have an English version of the website for promoting their products or services on international markets. Another finding of this study is that the investments made in ICTs in the last four years were minor for the surveyed businesses.

The barriers in ICT adoption could be the lack of capital, research and development resources, and the scale of operation to justify investment in IT (Evans and Parravicini, 2005). Also, their remote location exacerbated with restricted choice and access to alternative suppliers, sources of advice and expertise (Evans and Parravicini, 2005). As such, Buhalis (1999) recommends some kind of collaboration among small tourism businesses for the purpose of marketing, as in the form of ICT based Destination Marketing Systems. He explains this necessity as the scarce resources an independent small hotel can allocate on web tools, numerous hotels listed in search engines and the lack of expertise. Yolal and Emeksiz (2007)

propose a four step cooperative marketing model for small and medium sized hotel enterprises. The first step is the preparation step which determines the responsibilities of organizations. Second step is the initiation step which focuses on setting up objectives. Third step focuses on establishing the web sites and operating the system. The final step is the monitoring and evaluation of the system. Such cooperation may also be proposed for the rural accommodations in Cluj.This would help businesses become innovative and find innovative ways to promote their businesses, and further overcome obstacles associated with being small.

The implementation of a new ICT or the upgrade of an existing one is considered to be a process innovation for rural accommodations if is intended to improve the production processes and supporting activities for goods and services (for example, the reservation process, clients' registration process, etc.). Only a small number of rural the accommodations in Cluj County have an online reservation form on their website or have introduced or improved the hardware and software used in daily activities.

Although valuable information on the use of ICTs in rural tourism boarding houses was obtained, we consider that this study has a number of limitations from the following reasons: the sample is small and the geographical location where it has been developed is limited to one county. This study can be extended to other counties from Transylvanian and from other Romanian regions.

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