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ICT AS A NEW COMPETITIVE ADVANTAGE FACTOR – CASE OF SMALL TRANSITIONAL HOTEL SECTOR

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ABSTRACT: *This paper studies the information and communication technology (ICT) in a small hotel sector at a point in time when the transition towards a full market economy is coming to the end and competitiveness and ICT implementation is gaining on importance. Its main purpose is to study a business potential of this new competitive advantage resource and its productivity paradox. A competitive advantage factor model (CAF model) has been proposed and the structural modelling (SEM) has been performed on the case of a small transitional Slovenian hotel sector. The study contributes to knowledge on ICT competitiveness and ICT productivity paradox in hotel sector. Further, its results hold practical implications for the strategy for hotels operating in small-sized hotel industries in transitional or ICT developing environments. In more concrete terms, research findings indicate that such hotel sectors need to speed the ICT implementation. ICT as such doesn't directly increase the firm's profitability, yet there is an indirect positive impact of factor ICT on a firm's financial performance that emerges through other competitiveness factors, such as differentiation, quality or image, which helps firms to stay competitive on the tourism markets.*

Key words: *Information and communication technology (ICT), ICT implementation, competitiveness, strategy, small hotel industry, transition, Slovenia.*

JEL Classification: L8; M15; D24

1. INTRODUCTION

In a global market economy service companies must identify the key resources that can possibly generate a competitive advantage. They should also explore how they can access and capitalise on those resources in order to improve their business performance and stay competitive in the marketplace. The relevance of resources varies according to industry, time and space and may also depend on external industry conditions. Old resources such as personal contacts and low prices alone might be losing their competitiveness potential while intangible resources such as quality or brand (Tsai, Song, & Wong, 2009) are gaining in importance. New resources not previously known or explored might bring new

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potential for competitiveness. If for any reason companies have neglected the development of an important resource, new priorities must be set and a new policy defined in order to close the potential gap with their competitors.

Information technology (IT) such as Internet, central reservations systems (CRS) and other electronic distribution systems can be seen as a relatively new competitive resource not forming part of older competitive advantage theories and models. Interesting, the conventional research doesn't identify information technology as a critical success factor for attaining exceptional performance (Praničević Garbin, Alfirević, & Štemberger Indihar, 2011). Further, more recent researchers argue whether the ICT can be a competitive resource or not and around its competitiveness direct and indirect potential (Breznik, 2012).

Today researchers claim that IT and the Internet in particular can create a competitive advantage and improve performance and competitiveness (Namasivayam, Enz, & Si-guaw, 2000); Porter, 2001; Sirirak, Islam, Khang, 2011). In the hotel industry information technology investments are often made to improve performance (Tsai et al., 2009) which is the main reason for managers to install information and communication technology (ICT). Unfortunately, the empirical evidence does not always support the logic behind such expectations. There is evidence of a so-called ICT paradox that investing in computers and information systems may have a negative impact on a firm's productivity or performance (Roach, 1991; Brynjolfsson, 1993). This implies that ICT might not have a direct competitive advantage potential and thus researchers need to consider the benefits ICT offers apart from directly increased performance (Sigala, Airey, Jones, & Lockwood, 2004; Smith David, Grabski, & Kasavana, 1996). However, it has not been researched so far if the ICT productivity paradox in the early implementation stage might exist.

According to some authors, not many studies have researched the relationship of competitiveness factors, including ICT and performance, in hotel industry (Tsai et al., 2009) and there is a need for more studies investigating the impact of ICT on hotel performance in general, and in developing countries in particular (Sirirak et al, 2011). This is particularly the case in ex socialist and post-transitional Eastern European countries where at the beginning of the transition hotels have employed ICT at a much lower rate, compared to their more developed, traditionally market and customer oriented hotel sectors.. In this context, studying the role of competitiveness factors in the transitional Slovenian hotel sector is becoming relevant. In the year of study Slovenian hotels were performing poorly compared to other companies in the Slovenian economy and other international hotel companies (Kavčič et al., 2005; Tajnikar & Pušnik, 2008; Knežević-Cvelbar & Mihalič, 2007). We believe this was not only due to poor management and a lack of know-how but also the slow transition in the hotel sector that resulted in an inefficient ownership structure and old ways of doing business as practiced in the old system before the transition. During the transition Slovenian hotels ended up in the hands of state and investment funds which are not market- and performance-oriented (Prašnikar & Gregorič, 2002; Hrovatin & Uršič, 2002). Some consortia, such as Sava, Istrabenz and NFD have invested capital into hotels in Slovenia, Croatia and Italy which

resulted in some small national and international hotel chains. At the same time, small privately owned hotel business represented 45 percent of the hotel companies. Although generally regarded as more efficient and active owners, foreign companies still had almost no presence in the Slovenian hospitality industry. Domestic private consortia investors chiefly saw hotel ownership as a real estate investment opportunity and did not play an active role as owner. When the research was conducted (2000-2010), Slovenia had already transformed from a transitional to a developed high-income country, yet there is enough evidence that the transition in the hotel sector had still to be completed (Knežević-Cvelbar & Mihalič, 2007).

The main purpose of this paper is to study a competitiveness potential of a new resource: ICT and its potential productivity paradox on negative impact of ICT on firm's productivity. It proposes a factor competitive advantage model based on both competitiveness theory and previous competitiveness research and uses a structural modelling to apply this model to the transitional tourism industry. The paper researches the issue of competitive-advantage sources which are grouped into competitive-advantage factors for the hospitality industry from the point of view of the management of ICT resources. It also attempts to contribute to the understanding of how ICT can support the competitiveness of hotel firms in the Slovenian and transitional economy and if the ICT paradox of the inability of ICT to improve performance really arises. In particular, it aims to contribute to knowledge on ICT competitiveness potential for hotels and address several questions, including:

- What is the competitiveness potential of so-called new ICT resources for the hotel sector?
- Do hotel managers recognize the new business opportunities emerging through ICT?
- Are there more traditional hotel business specific competitiveness resources that might make the use of ICT redundant or its penetration slow and which industry characteristics determine the implementation of ICT?
- Does ICT investment decrease a hotel firm's performance as claimed by a productivity paradox or does ICT increase the competitiveness in some other ways, such as by enhancing competitiveness of other factors?

This paper studies the information and communication technology (ICT) early stage implementation and competitiveness in a small hotel sector at a point in time when the transition towards a full market economy is coming to the end and ICT is gaining higher ranks on the competitiveness factors list of firms. At the same time, the chosen time point also date before the great economic and financial crisis which may influence the position of some competitiveness factors. More specifically, the price factor, which is seen as less important in the period of economic growth, might become more important in the circumstances of lower purchasing power and consumer confidence. For this reason data on tourism hotel competitiveness for Slovenia for the year 2005 have been chosen.

Paper has five sections. After the introduction, the second section considers the importance of ICT for the hotel industry's competitiveness and strategies and presents the literature research on the importance of ICT competitiveness factor. This is followed by a

presentation of Slovenian transitional hotel competitiveness issues and previous studies. Both sections form a theoretical and previous research framework for development of hypothesis, presented in section Methodology. The next part presents the results, while the last chapter delivers the discussion and conclusions, study limitations as well as suggestions for future research.

2. HOTEL COMPETITIVENESS AND ICTS

2.1 Sources of competitive advantage

A company is profitable if its ultimate value exceeds the collective costs of performing all the activities required to gain a sustainable competitive advantage over its rivals (Porter, 1979; 1989). Theoretically, we built on two different views on competitive advantage: generic strategy view and resource-based and (Bilgihan, Okumus, Nusair, & Kwun, 2011). A pure competitive advantage with respect to an individual company (offering tourist products) is linked to main generic strategies and can take the form of either low-cost or differentiated products that are sold at premium prices as well as the form of focus or niche market strategy. A competitive advantage resource-based view looks at the company resources and on their impact on competitiveness (Hunt 1995; Barney 1991). It suggests that a sustainable competitive advantage can only be created by intangible sources such as responsiveness to consumer needs and preferences, quality, image etc. Cost efficiency remains a necessary condition for the creation of profit; however, so-called non-price or intangible factors are those that add most of the value to a product.

2.2 ICT as a competitiveness advantage factor

Some authors believe the primary role of IT in the hotel industry is to improve productivity (Ham, Gon Kim, & Jeong, 2005). Many tourism and hospitality researchers claim that ICT is a competitive advantage factor (Buhalis, 2003; Polo Pena & Frias Jamilena, 2010; Camison, 2000; Sunil and Islam, 2005; Luque-Martinez, Castaneda-Garcia & Frias-Jamilena, 2007; Buhalis, 1998; Sheldon, 1997; Ma, Buhalis & Song, 2007). These authors understand ICT as the hardware and software, the groupware and network as well as the intellectual capacity (humanware) to develop, programme and maintain the related equipment. Indeed, different kinds of the abovementioned “wares” such as super and mini computers, office applications, tele-conferencing, the Internet, intranet, central reservation systems (CRS), satellite and mobile communications, interactive television and self-service terminals etc. have been adopted by hotel companies to improve their operational efficiency and competitiveness (Buhalis, 2003).

The Internet has received significant attention from entrepreneurs, executives, investors and business observers and many have assumed that the Internet changes everything about companies and competition. Internet banking, for example, has changed the traditional banking culture and brought competitive advantages to ICT-advanced banking

firms (Yiu, Grant & Edgar, 2007). Another example in the airline and tourism industry is the use of CRSs (computer reservation systems) that have permanently changed the way of doing business in these service-based industries (Buhalis, 2004). Similar changes soon followed in the hotel industry and ICT became the key issue for the future of the hotel business (O'Connor & Frew, 2002). In 2000 US hotel managers saw IT as a mechanism to obtain competitive advantages, mainly through improved employee productivity and enhanced revenue generation (Siguaw, Enz, & Namasivayam, 2000).

The question is whether ICT should be seen as an independent intangible competitive resource or factor, and how is it linked to profitability. Some studies, mainly in OECD and some transitional economies, provided empirical evidence based on the production function of the link between ICT and rises in productivity, which proved to be stronger in service sectors (Stare, Jaklič & Kotnik, 2006). This can be linked to the new business opportunities offered by ICT and it seems that they are creating a new potential source of competitive advantage and profitability. Tsai, Song and Wong (Tsai et al., 2009, p. 537) studied competitiveness in the hotel industry and concluded that “information technology (IT), such as the Internet, intranets, and central reservation systems, is one of the crucial technology investments that are often made by hotels to improve performance”.

2.3 The ICT productivity paradox and ICT as supporter of other competitiveness resources

Despite the positive productivity expectations derived from ICT employment discussed above, there is also evidence of a negative relationship between ICT investment and productivity, called the IT productivity paradox (Brynjolfsson, 1993). Developed in non-tourism-related research, this paradox has been much discussed and criticised in the literature.

On the one hand, some hotel research has come close to the same negative impact of certain applications on productivity. For example, Smith-David, Grabski and Kawasana (1996) reported that hotel managers believe that some applications (vending, entertainment) reduced productivity. The same hotel researchers also did not establish a direct correlation between competitiveness and the implementation of ICT. Further, one Taiwanese study on hotel performance was unable to confirm a significant impact of ICT investment on Taiwanese hotel performance, although it acknowledged problems in isolating the contribution of ICT to other competitiveness factors (Sigala et al, 2004).

On the other hand, Sigala's research group argued that the IT productivity paradox is a methodological artefact and, in the case of three-star hotels in the United Kingdom, highlighted new methodology in order to prove ICT's productivity potential. The research group concluded that investing in ICT per se does not bring productivity gains, but benefits arise from exploiting ICT networking and informationalisation capabilities. The same is claimed by Buhalis and Zoge (2007). They interviewed 28 top tourism experts from all tourism sectors, including technology providers, who participated in the

Travel Distribution Conference in Brussels in 2005. They analysed the Internet's impacts on the tourism industry's structure by applying Porter's Five Forces Model of the competitiveness structure of an industry (Porter, 1979; 1980) and concluded that tourism firms should introduce constant innovations in terms of technological advancements in order to be able to offer differentiated and value-added products. Some empirical research in a hospitality industry in Turkey (Avcikurt, Altay & Ilban, 2010), has identified different management practices, performed over the internet, to be one of significant success factors.

Accordingly, there is more evidence that some authors do not see ICT as an independent competitive factor. Porter (2001) argued that the Internet cannot be a strategy in itself and that it is only by integrating it into an overall strategy that it will become a powerful source of competitiveness advantage. To unravel the productivity paradox, the hotel industry must consider the support and benefits technology offers apart from directly increased productivity (Smith-David, Grabski & Kasavana, 1996).

2.4 Determinants of ICT implementation

The available studies on ICT and competitiveness discuss a number of variables that determine the different attitudes of hotel firms to ICT and its implementation. These factors are firm size, category, ownership structure and governance type, type of hotel management model, contracts, culture, the kind of tourism destination and others. For example, Paraskevas and Buhalis (2002) argue that large hotel chains were faster to move to ICT alliances already in the 1980s, yet independent hoteliers have been more reluctant regarding ICT – partly due to technophobia. Similarly, Siguaw, Enz and Nmasivayam (2000) argue that US hotels belonging to a hotel chain are more innovative and can easily gain new technological know-how compared to lower tariff hotels that do not belong to any chain. Van der Borg, Minghetti and Riganti (1997) claim that the implementation of ICT in small- and medium-sized Italian firms depends on their location in a more urban or rural area, the sector's structure in terms of type, size and legal status, internal organisation and the management culture. They found that the strongest hindrances to implementing ICT were the significant fragmentation of the industry, the prevalence of family hotel management, the poor technology-oriented culture, the high attractiveness of the destination, costs and the prevalence of direct, informal and information flows inside the firm and between the firm and the market. Further, a Swiss case study also found that the implementation of ICT is significantly determined by category, size, geographical location and linguistic region (Murphy, Olaru, Schegg, & Frey, 2003). In the case of transitional economies, ownership and its characteristics are relevant determinants of firms' performances (Devi et al., 1998). The vast literature concerning the tourism sector suggests that different ownership forms (family, institutional, state) hold different potential for a firm's performance. Active ownership assumes that firms are owner-controlled and actively influence the firm's performance. Where owners are unable to effectively guide and control the decisions of managers, the firm becomes manager-controlled and management might have different goals. Further, the privatisation process that aims to

bring property rights and control in line with modern market-based economies might have the strongest impact on firms' performances in transitional countries. For example, in Eastern European countries outsider privatisation that would bring in active owners is only proceeding slowly (Blanchard & Aghion, 1996). The present insider owners might be reluctant to sell and block any outsider privatisation by an excessive resale price because, *inter alia*, they are protecting the jobs of the employees. The assumption that transitional owners that cannot achieve the restructuring most former state or former socialist firms require will have the right incentives to sell does not seem to hold water. Some of these factors might also be relevant to the Slovenian and other transitional hotel sectors.

3. SLOVENIAN HOTEL COMPETITIVENESS

3.1 The Slovenian hotel industry

Slovenia is a new post-transitional country that became independent in 1991 by proclaiming its independence from socialist Yugoslavia. The small population of 2 million people started on its way towards a market economy and became a European Union (EU) member in May 2004 and soon also a member of the European Monetary Union (EMU), with the European currency the euro being introduced in January 2007. At the beginning of the transition, restructuring from the socialist to a market economy was the main process enabling firms to survive. Accordingly, investment in general and investment in ICT in particular were delayed and lagged behind most transitional countries. The growth of ICT investment after 1995 was mainly driven by the service sector, although other sectors also invested in IT (Stare et al., 2006). The implementation of ICT in the tourism sector has been well below the European average.

The transition process in the Slovenian hotel industry was initially influenced by: the fall in foreign tourism demand; the lack of any service culture; the little brand awareness of this new state, an ex-socialist and small European country; the close proximity to the Balkan crisis; accession to the EU and, very likely, by the over-maturity and low quality of the Slovenian tourism product. In the year of our study, Slovenia hosted 2.4 million tourists who stayed 7.6 million nights, 58 percent of which were made by foreign visitors (SURS, 2009). Overnight stays in hotel accommodation represented about 60 percent of the overnight market volume. Slovenia had 130 hotels with a capacity of around 28,000 beds. About 80 percent of hotel companies could be classified as small and medium businesses in terms of their size. Since 1991 Slovenian tourism has started to be built on differentiated products with higher value for the customer. This has consequently brought higher prices for hotel services that were not a direct strategy in itself but a consequence of the orientation to differentiation, quality and image, as well as necessity due to the small size of the Slovenian tourism industry (Mihalič & Dmitrovič, 2000).

The transition in Slovenia started with the privatisation process. 60 percent of social capital was privatised, with the remaining 40 percent being compulsorily transferred to state funds (Hrovatin & Uršič, 2002; Simoneti et al., 2005). Better performing companies

were privatised internally, while companies that had performed poorly ended up in the hands of the state and investment funds. In the year of our study, the state and investment funds held important ownership shares in Slovenian hotels, along with internal owners. The hotel sector was owned by different funds and banks (33 percent), other domestic companies which also had state funds in their ownership structure (40 percent), employees (9 percent), and managers (3 percent). In terms of competitiveness and performance, such an ownership structure has a negative potential and Slovenian hotel companies with higher direct state ownership perform worse than other companies. The reason is that the state (state funds) is a poor and passive owner (Prašnikar & Gregorič, 2002; Knežević-Cvelbar & Mihalič, 2006) and other ownership kinds offer better performance potential.

Foreign ownership was low, with just 2 percent of the hotel industry being held by foreign companies. The remaining 13 percent belonged to small owners and other owners (Knežević-Cvelbar & Mihalic, 2007). The hotel structure in Slovenia was quite homogenous in terms of the management structure, mixed (state, private) ownership, medium in size, and the share of family owned and run hotel businesses was low. At the time of the research international foreign direct investment and management contracting in Slovenia was non-existent. Only a few international chains were present (two hotels belonged to Best Western and one to Relais & Châteaux).

The quality of more than 50 percent of all hotel capacities was at the four-star level, while approximately 40 percent of capacity was at the three-star level (Kavčič et al., 2005). Accommodation capacities were divided among different types of destinations: the majority was in mountain destinations (28%) and sea resorts (26%), followed by spa resorts (21%). The accommodation sector in the capital Ljubljana then accounted for around 10 percent of all hotel capacity in the country, other places 13 percent (SURS, 2011).

The majority of hotel companies were managed by hired managers, yet the appointment of those managers might have been influenced by the owners, including the state. The industry suffered from a skill shortage among middle and top managers (Sibila Lebe, Milfelner, Cvikl, Šarotar Žižek, & Treven, 2009), probably due to the low wages and absence of training programmes. Some smaller hotels were managed by family owners, yet this was more the exception than the rule.

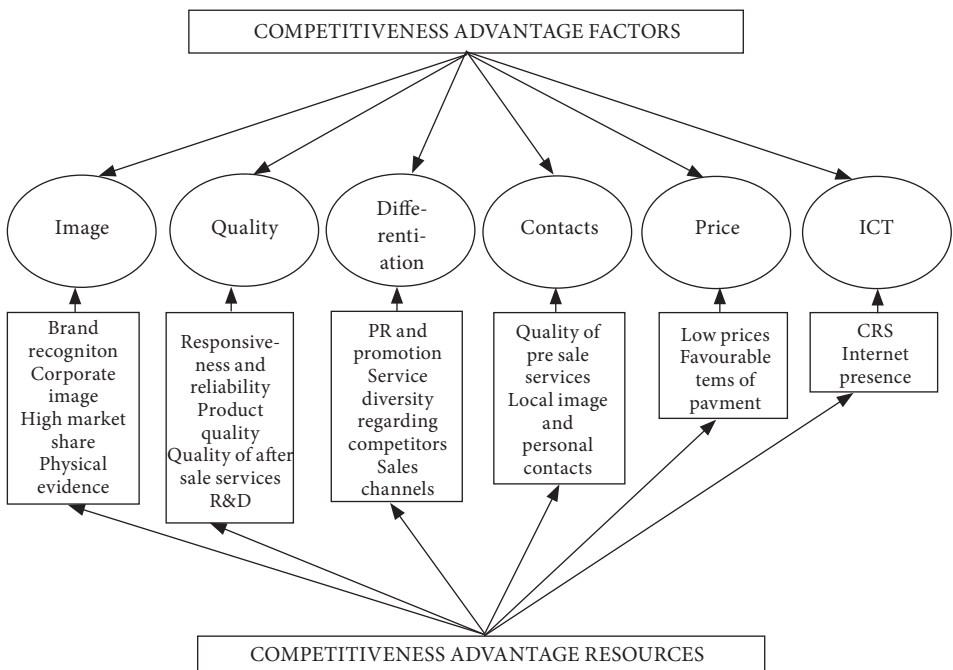
One study conducted in 2004 showed that Slovenian hotel firms were not competitive in IT technology (Omerzel-Gomezelj & Mihalič, 2008). Accordingly, investment in general and investment in ICT in particular were delayed and lagged behind most transitional countries (Stare et al., 2006). Less than 5 percent of tourism information was provided through the Internet, well below European average of around 30 percent. According to research (Polo-Pena & Frias-Jamilena, 2010; Balaz & Williams, 2004; Martin & Matlay, 2003; Stare et al., 2006), the deployment of ICT is especially important for emerging areas with less economic development, and smaller areas. The Slovenian hotel sector meets these conditions. While in the year of our study Slovenia had already moved from the

list of transitional countries into the category of high-income and developed countries, the transition in the hotel sector was slower than in the rest of the economy and still ongoing.

3.2 Previous studies on Slovenian competitiveness resources

In 2000 Slovenian researchers created a transitional competitiveness resource model for the Slovenian economy (Prašnikar, 2000; Mihalič & Dmitrovič, 2000). It is based on four economic sectors, namely: manufacturing, trade, hotels, and tour operating, which evaluated the importance of 15 possible sources of competitive advantage. The competitiveness resource list was based on previous research and Porter's (1979) and Hunt's (1995) work on competitive resources and resource-advantage theory. The explanatory factor study revealed five factors: image, quality, differentiation, contacts and price.

Figure 1: *Proposed CAF¹⁾ model*



CAF¹⁾: *Competitive advantage factor*

Source: *Adapted from Mihalič & Dmitrovič, 2000).*

Among these five competitive advantage factors, first four can be classified as intangible (non-price) and the last one, e.g. price, as a tangible factor. Unfortunately the ICT was not part of the above Slovenian CAF model. In the questionnaire prepara-

tion phase, the group of tourism researchers in the project suggested extending the Porter/Hunt-based variable model and adding ICT-related competitiveness resources since at the time debate on ICT as a competitiveness factor had already started in the international general and tourism competitiveness literature and research (Buhalis, 1998). Unfortunately, in 2000 other researchers did not see ICT as a possible competitive factor for Slovenia's trade and manufacturing industry. Consequently, data on ICT were only collected for hotel and travel firms. Since in 2000 ICT tools, vocabulary and options were not well-developed in Slovenia, the absence of terminology for describing electronic distribution also became apparent (concerning this problem also see O'Connor & Frew, 2002) and only two resources were defined: Internet presence and the use of CRS. The latter referred to reservation systems that can take many different forms, varying from central reservation systems, as usually adopted by larger hotel chains, to other web intermediaries. For the sake of compatibility, the same vocabulary was also adopted in the 2005 hotel industry survey. The proposed six CAF model is presented in Figure 1 in circles. Figure also lists the corresponding competitive advantage resources in boxes.

4. METHODOLOGY

4.1 Data

The Institute for Tourism at the Faculty of Economics, University of Ljubljana conduct an ongoing research on tourism competitiveness and collects data every five years and have developed a data base for 2000, 2005 and 2010. In order to test our research hypothesis on the case of early stage ICT implementation in the hotel industry, data for the year 2005 have been chosen. The chosen year represent the point of time when Slovenia has already been a part of European Union, a transition towards a full market economy was coming to an end, ICT implementation started to gain position on the hotel competitive resource lists and before the great economic and social crises started.

Hotel managers were asked to assess the importance of specified sources of competitive advantage as regards their company on a five-point Likert scale (1 for not important, 5 for very important). In 2005, the same questionnaires as in the previously mentioned Slovenian competitiveness study in 2000 were sent to all Slovenian hotels (130). Sixty usable questionnaires from the respondents were obtained, constituting a response rate of 46 percent. The questionnaires were answered by hotel directors, marketing or reception managers.

Financial performance indicators were calculated directly from the financial statements of firms (GVIN, 2005). Different measures (ROA, ROE, value added) were tested, with only significant measures entering the final CAF model presented in this paper. Performance indicators for a certain hotel firm have been linked to the opinion on competitiveness resources of managers from the same firm.

Table 1: Size structure and sample characteristics of the Slovenian hotel industry, 2005

Enterprise size	Number of enterprises – sample (%)	Number of enterprises – hotel population (%)
1	2	3
Micro and small (10–49 employees)	48	45
Medium (49–250 employees)	37	38
Large (250 + employees)	15	17

Source: GVIN, 2005

According to size (EU, 2003), 45 percent of the interviewees were from small, 38 percent from medium-sized and 17 percent from large hotels. The hotel size sample structure was a fair reflection of the Slovenian hotel population (Table 1). Seven percent of the sample represented two-star hotels, 35 percent three-star hotels and 57 percent four- or five-star hotels. 13 percent of the hotels in the sample were family-owned, the rest had a mixed ownership structure, including state funds. All destinations are proportionally presented, with two hotels belonging to an international hotel chain (see Table A2 in the Appendix).

4.2 Method and hypotheses

For presented research, the proposed six CAF model (Figure 1), as developed by Mihalič and Dmitrovič (2000) has been used. Descriptive statistics, methods for testing the hypotheses and correlation computations were conducted using the SPSS. A structural equation model (SEM) with a LISREL estimation was calculated in order to present the structured connections among the factors of a firm's competitiveness and firm's profitability. The CAF based SEM defines direct and indirect profitability connections and their dimensions, which is important when testing for the direct and supporting competitiveness potential of factors such as ICT.

In line with our literature research, presented in the previous chapters, four hypotheses have been created. First, since the implementation of ICT in Slovenian hotels was underdeveloped it is argued that Slovenian managers did not deploy ICTs in day-to-day business:

Hypothesis 1: Slovenian hotel managers perceive the ICT factor as being less important than other competitiveness factors.

Second, in order to understand the low ranking of ICT on the competitiveness factor list and the slow penetration of ICTs in the Slovenian hotel industry the industry's attitude to new ICT technologies have been studied:

Hypothesis 2: Slovenian hotel managers don't recognise the new business opportunities emerging through competitiveness factor ICT.

And third, following the discussion in previous chapters (Van der Borg et al, 1997) we examined if the use of ICT was made redundant as managers prioritized other old or hotel specific ways of doing business, such as personal contacts. Thus we claim:

Hypothesis 3: Slovenian tourism hotel managers prioritize competitive factor personal contacts.

In addition, the analysis also incorporated different determinants that influence the implementation of ICT such as firm size, category, ownership, the presence of international chains and destination type.

Forth, based on our previous discussion on ICT productivity paradox which showed a negative direct relationship between ICT investment and a firm's profitability, we claim that:

Hypothesis 4: There is an indirect positive impact of factor ICT on a firm's financial performance that emerges through other competitiveness factors.

5. ICT AS A COMPETITIVE ADVANTAGE FACTOR IN THE SLOVENIAN HOTEL SECTOR – RESEARCH RESULTS

5.1 Low importance of ICT competitiveness factor

In 2005, Slovenian hotel managers still perceived the ICT factor as less important than most other competitiveness factors. Compared to the situation in 2000, the result improved by just 7 percent (Table 2). Indeed, according to the managers ICT and low prices were the least important competitiveness factor, holding ranks 5 and 6. In their opinion, competition was based on contacts, differentiation and quality which occupied the first three ranks. In favour of our first hypothesis, the ICT factor was evaluated significantly lower than the three mentioned factors (Table 3). The importance of contacts for doing business remained the number one competitiveness factor in the opinion of hotel managers. Five years later, in 2010 contacts show much lower position. Table 2 also shows that the ICT position on the priority competitiveness list is steadily increasing and has improved its position for another rank in 2010.

Table 2: *The importance of CAFs¹⁾ (1 - not important; 5 - very important), Slovenian hotel industry*

CAFs ¹⁾	2000		2005		2010	
	Mean	Rank	Mean	Rank	Mean	Rank
Contacts	4.26	1	4.47	1	3.98	5
Quality	4.15	2	4.17	2	4.29	2
Differentiation	3.98	3	3.94	3	4.31	1
Image	3.81	4	3.80	4	4.14	3
ITC	3.42	6	3.68	5	4.06	4
Price	3.57	5	3.09	6	3.23	6

CAF¹⁾: *Competitive advantage factor*

Table 3: Paired Samples Tests for CAFs⁽¹⁾, Slovenian hotel industry

		Mean	Std. Deviation	Std. Error Mean	t	df	Sig. (2-tailed)
Pair 1	Price - ICT	-.59167	1.04756	.13524	-4.375	59	.000
Pair 2	Image - ICT	.11250	.67244	.08681	1.296	59	.200
Pair 3	Contacts - ICT	.78333	.96272	.12429	6.303	59	.000
Pair 4	Differen - ICT	.25556	.80515	.10394	2.459	59	.017
Pair 5	Quality - ICT	.48750	.89540	.11560	4.217	59	.000

*: CAF - Competitive advantage factor

Since Slovenian firms entered the transitional period from a socialist to capitalist model in the 1990s, 15 years later in 2005 the industry characteristics were quite mixed. The majority of hotels had mixed state-private ownership, with a smaller share of the hotel business being family-owned. Yet, Pearson's coefficients (Table A1 in the Appendix) did not confirm that the implementation of ICT varied according to the type of ownership, even though family-run hotels have a lower propensity to adopt technological changes and a higher orientation to price policy. In our case, the importance of ICT was only affected by the category of the hotel and the destination type. The leaders in the category group are four-star hotels, while the leaders in the destination group are spa hotels. Contrary to our expectations, we were unable to confirm the impact of being a member of a chain or a firm's size on awareness of the importance of ICT.

5.2 Low hotel industry attitude to new technology and high importance of the competitiveness factor contacts

The industry's attitude to new technology was not very supportive; the mean value is 3.33 and lower than the value of any competitiveness factors, as demonstrated in Table 5 which supports our second hypothesis. Such a neutral environment (a mean value of around 3, Table 4) was not very friendly to the implementation of new technologies and might have slowed down the process of adapting in response to new technological challenges. Slovenian hotel firms that considered technological changes in the industry infrequently were less likely to implement new information technology. Given previous studies (Van der Borg et al., 1997), this result is no surprise. Many characteristics of the Slovenian hotel industry suggested ICT hindrances such as low technology-oriented management culture based on poor knowledge and a fear of the high cost of investing in access to digital worlds, as well as low connections with the international hotel world in terms of FDI, brands and consequently international hotel contracting. Yet, in line with previous research hotel managers hotels that belong to an international chain demonstrated greater awareness of the importance of technological change (Tables A1 and A2 in the Appendix). At the same time, we cannot confirm that large hotels are technologically more aware. On the contrary, the results confirm the statistically significant higher values for smaller firms' attitudes to technology.

Table 4: Evaluation of attitudes to new technology, Slovenian hotel sector (1 - don't agree; 5 - completely agree)

Attitude to new technology	Mean	St. dev
A new business opportunity	3.57	0.88
Infrequent changes	3.08	0.74

Table 5: Paired Samples Tests for Technology Attitude, Slovenian hotel industry

	Mean	Std. Deviation	Std. Error Mean	t	df	Sig. (2-tailed)
Pair 1 All Factors-Tech. Attitude	.45789	.67891	.08765	5.224	59	.000

Despite the low priority given to ICT by Slovenian hoteliers, the hotel business is in its nature an information and communication intensive business. The quality of the intangible service the industry offers depends on a firm's ability to rapidly communicate internally and externally with partners and customers. ICT manages internal and external contacts and thus information flows more efficiently than simply by way of personal contacts. Yet, Slovenian managers preferred to do business via personal contacts and evaluated the competitiveness potential of contacts significantly higher than ICT (Table 3). This confirms our third hypothesis on the prevalence of doing business according to old ways through personal contacts.

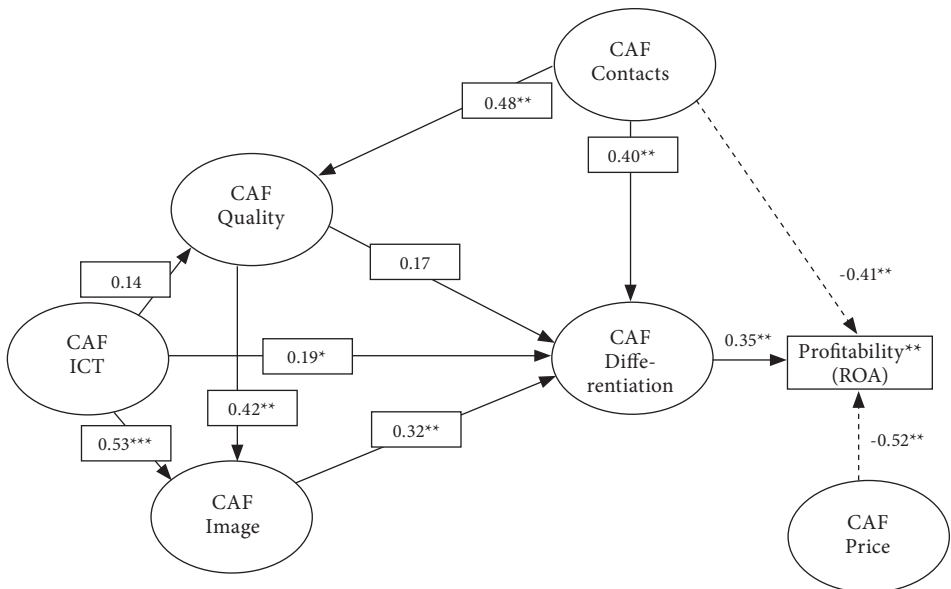
5.3 ICT's positive indirect impact on productivity

Further, the unfavourable deployment of ICT might have another explanation – the managers have not considered it as an important factor of their firm's profitability. Are Slovenian managers aware that ICT could represent a layer of info-structure which supports other factors of competitive advantage, e.g. that there may be an indirect impact on their firm's profitability? Can a firm successfully follow a differentiation strategy and neglect the supportive role of ICT? Can personal contacts efficiently support the chosen strategy and help improve the firm's performance in a more market-based environment?

The above questions were studied with the SEM LISREL CAF model on the direct and indirect impacts of competitiveness factors on productivity. The chi-square (10.78 with 7 degrees of freedom) for the test of difference between the observed and estimated covariance matrixes is not significant (a p value of 0.149) and the non-normed fit index (NNFI) is 0.93, above the threshold value of 0.9 suggested by Tze Hu and Bentler (1998). Only the root-mean square error of approximation (RMSEA) is slightly above the suggested cut-off value of 0.05 for a good fit model, although still below the 0.1 cut-off for a poor fit. All of the described indices were found by Tze Hu and Bentler (1998) to be robust to non-normality and sensitive to possible model misspecification. They all show that the model has a fairly good fit and is specified correctly.

The model confirms our forth hypothesis that ICT has a positive impact on a firm's productivity, albeit its impact is only indirect via the factor of differentiation (Figure 2). ICT also supports differentiation through significant direct impacts of ICT on the factor image that, again, has an indirect impact on profitability through the factor differentiation. As Figure 2 shows, CRS helps improve the responsiveness and reliability of services. Both CRS and the Internet improve PR and promotion, open new sales channels, enable a bigger market share, and improve brand recognition and corporate image. Although there is no significant link between ICT and quality, quality orientation has a strong impact on image which, as already stated, positively supports the differentiation strategy and boosts productivity.

Figure 2: Proposed CAFs¹⁾ model of ICT's impact on profitability, Slovenian hotel industry



CAF¹⁾: Competitive advantage factor

*: Significant at the 0.05 level, **: Significant at the 0.01 level; ***: Significant at the 0.001 level

Chi-Square=10.78, df=7, P-value=0.14853, RMSEA=0.098, Normed Fit Index (NFI) = 0.93

Source: LISREL estimation

The model also showed that the personal contacts given such high priority by hotel managers have a direct negative impact on productivity, yet they are important for the perception of quality and also have the potential to support a successful differentiation strategy. Indeed, pre-sale personal services and other contacts do improve the quality of services, yet Slovenian hotel firms might overestimate the importance of contacts and employ them too extensively and at too great a cost, hence the negative impact on performance. It may be that other factors offer more productive potential for a firm's performance. Further, personal contacts might be too costly compared to CRS or the Internet, that

might partially replace the use of personal communication and via sales channels hold positive potential for a firm's productivity.

Further, our model also logically connects Porter's competitiveness strategy theory with the theory of competitive advantage resources/factors. The tangible factor low prices in Figure 2 can be easily linked to a low price strategy, which is obviously not an option for Slovenian hotel managers as it holds negative potential for a firm's profitability. Therefore, the alternative, e.g. a differentiation strategy, should have a positive impact on a hotel's performance. In our model the positive impact is a result of direct and indirect links with and among many intangible competitiveness factors which connect to differentiation which, in turn, have a positive impact on a firm's profitability. However, the ICT factor is an integral part of a differentiation strategy.

6. DISCUSSION AND CONCLUSIONS

6.1 Theoretical contributions

The main novelty of the present paper is the proposed six CAF model and its clear identification of six potential competitiveness advantage factors: image, quality, differentiation, contacts and price. Although the model has already been proposed in previous research (Mihalič & Dmitrović, 2000), the present study expanded its potential to study the direct and indirect competitiveness relations. Such a SEM based approach enables to test the ICT factor for its direct and indirect competitiveness potential and to study the ICT productivity paradox from the real and methodological point of view. The results on the presence of indirect ICT impact on productivity rather than direct, contribute to the wider knowledge and theoretical understanding of the productivity paradox in the tourism field. The SEM approach, first time used in order to study the mentioned paradox in a hotel industry, has some methodological advantages.

First, it helps to overcome a methodology based mentioned paradox and to understand the ICT competitiveness potential for hotel business. More specifically, it further confirms the previous research findings on the "lost productivity paradox" (Sigala et al., 2004, p. 180), based on different methodology. Our CAF model shows that also in traditional economies or in the early ICT implementation stage the ICT paradox does not exist and that ICT has indirect and strong positive potential for firm performance. The ICTs are a complement and enablers of other competitive resources and can no longer be ignored. Failure to employ ICTs can lead to competitive disadvantages as channels to the market will go unexplored, and PR and promotion, service diversity, branding etc. will not reach the potential competitiveness potential, if not properly supported by the ICT.

Second, SEM, using our six factors approach also helps to understand the indirect connections, their direction and positive or negative impacts. More specifically, transitional hotel sectors that, due to a social tradition, might not deliver a high quality products, need to recognise the importance of product quality, in comparison to lower importance

of price. Transition might also demand new ways of doing business, such as IT based communication, instead of more traditional personal contacts.

In the above sense our research expands a tourism field related knowledge on firm's ICT competitiveness, specifically for small transitional and ICT developing tourism sectors. In addition, the research also has some practical implications, as discussed in the next sub-chapter.

6.2 Practical implications

Our empirical research shows that the ICT has indirect and strong positive potential for firm performance. This is especially true in transitional countries where ICT is used much less than in more industrialised countries. Therefore, it is concluded that for hotel firms ICTs reengineer and rationalise processes and services and indirectly increase firms' performances – through other competitiveness factors. Although investments in ICT have been low, its productivity potential has been proven to be significant. Tourism policy in transitional countries should aim to speed up the process of implementing ICT.

The next practical implication refers to low-price strategies. Small hotels and hotels in small destinations cannot achieve the advantages of broader market scope and a mass scale economy. For such hotel firms, a low-price orientation in a small volume market erodes their economic efficiency and we found that ICT has no potential to improve this situation. As clearly seen in our model, there are no connections between low prices and the ICT factor and also no connections among price and other competitiveness factors that have positive potential for improving financial performance. In our case this also means that low quality tourism products, often associated with a low market and customer orientation and the poor managerial performance motivation in former socialist countries, with products marketed and sold at low prices, are incompatible with today's ICT-supported tourism business.

Further, we proved that in the year of study tourism managers did not see ICT as an important source or supporter of competitiveness. The perception of ICT's importance for business was relatively low, compared to other possible competitiveness sources. If we ignore the perceived competitiveness potential of low prices, Slovenian managers saw ICT as the least important factor. Their attitudes to technological changes were consistently neutral. Both factors might explain the low level of ICT deployment. In addition, other determinants are also important. In many cases equity owners in transitional countries still do not perform their usual governance function because the privatisation process has not yet been completely finished and thus the transformation towards market-oriented performance and competition has not been fully exploited. This means that the present owners are passive owners who do not strongly enforce the same business standards applied in more developed countries. In the year of the study, the transition in the Slovenian hotel sector had still not finished and a large share of hotels was still in the hands

of inside owners, the state and other funds which may explain why the managers hired by these owners have not been much forced to explore new ways of doing business. Less competitive and less innovative hotel managerial attitudes are well-known in many cases where managers are civil employees and hotels are state-owned. In general, hotel ownership has been attractive as a capital investment opportunity due to skyrocketing real estate values. Therefore, the main interest of shareholders has not been hotel performance since the value of their real estate (capital) has been rising, thus creating a low stimulus to control the managers to ensure they are more competitive. The willingness to sell to new, active owners has been hindered by excessive resale prices, also due to speculative expectations of higher property values. Mechanisms such as the standard hotel manager being contracted by an active (foreign) owner were non-existent in Slovenia at the time of survey. Yet it is true that managerial attitudes to technological changes were significantly higher in hotels that belonged to international hotel chains and it can hence be concluded that international hotel chains have a positive impact on ICT business integration. At the same time, chain partners have easy access to ICT-related knowledge, training and applications. Unfortunately, there has been few foreign capital or other partnerships in the Slovenian economy. The slow and case-by-case privatisation has kept foreign direct investment inflows at low levels, while the lack of effective competition and obstacles in the business environment have not been supportive of capital inflows and new competitive sources into the country. In 2005, the World Bank (2005) ranked Slovenia the second worst country in the EU for the “ease of doing business”. The Slovenian hotel sector has remained practically the same in terms of foreign hotel investment and international hotel management connections and it could be argued that this also explains the slow penetration of new competitiveness sources, even though they have been extensively and successfully employed abroad.

The research findings also show that Slovenian hotel managers favour doing business through personal contacts, which they see as the most important competitiveness factor (rank number 1). Firstly, this is certainly the old way of doing business and can be seen as hotel business specific. Secondly, in the Slovenian context of a former socialist country, personal contacts in doing business also relate to contacts with other firms and organisations, including government ones, that are seen as a substitute and correction or non-market support for commercial business. Yet, unfortunately for Slovenian managers the SEM showed that such contacts have had a direct negative impact on firms’ profitability. As the theory suggests that ICT is a tool for rapid and cost-effective communication with both business partners and final customers, this finding represents an additional argument for implementing ICT. The implementation of ICT will also change the nature of contacts which, in their present form, are obviously too costly and in the modern market economy inefficient, and thereby negatively connected to firms’ performance. Certainly, this finding can be generalised, too.

Transitional hotel sectors might be implementing ICT in their day-to-day business too slowly. In order to close the gap with technologically-advanced hoteliers it is logical to expect that the neglected competitiveness factor will be prioritised and that it will hereby increase its rank on the list of possible competitive advantage factors. First, hotel

managers in transitional countries should be more aware of the competitiveness potential of new technologies, not simply of their costs. The situation has not been satisfactory given the time lag involved in Slovenian businesses implementing ICT technology compared to American or other West European hotels. It could be argued that, if the sector is relatively neutral as regards seeing technological change as a business opportunity and if the general awareness of frequent technological changes in the hotel business is also neutral, such a situation would slow the ICT implementation process down and widen the gap with technologically more advanced hotel sectors. Thus, there may be a need to boost the sector's awareness of technological business opportunities and changes. If the sector's attitude to new ICT is not strong enough, significant changes in favour of implementing ICT will have to be pushed from outside tourism companies and industries, for instance through tourism policy or through pressure in the supply chain. In the event of the poor employment of ICT, tourism demand might turn in the direction of (electronically) easily accessible accommodation. At the same time, supply chains might also turn to other more ICT-competitive destinations. For this reason, the awareness and employment of ICT in the commercial sector holds strong tourism policy relevance.

6.3 Limitations and future research

Some limitations of this study reduce the possibility to generalise its results. First, although the sample of the hotel industry covered 46 percent of the whole hotel population, this means a sample size of just 60 hotels. Consequently, the size of the sample sometimes imposed limits on the statistical analysis.

Second, data on competitiveness resources and conditions were gathered via a questionnaire and refer to a hotel unit. These data were combined with official data from balance sheets which refer to hotel firms that might also own other business units, not only the corresponding hotel. In addition, due to the unfinished transition and privatization process in Slovenia the financial statements might not always reflect the firms' true performance levels. Thus, some firms have negative equity and are still allowed to stay in business.

Nevertheless, we tried to overcome some of the above limitations with the selected statistical methods and confirmatory factor analysis using structural equation modelling (SEM). Thus, the Slovenian study makes an interesting case since its results also hold implications for strategy implementation for hotels operating in small-sized national or regional hotel industries in transitional or developing environments. Although it is dangerous to generalise empirical findings, the theoretical support of the empirical results might allow us some freedom to do so. We thus assume that the CAF model is useful for small-sized traditional hotel economies that are forced, or have decided, to concentrate on small volume business. Because of the size, the model could also be applied to hotel sectors not only in small national economies but also at regional destination levels.

In general, the above findings might be relevant to small and developing hotel sectors. The potential of ICT for the competitiveness of larger and more developed hotel sectors that might focus on a large-scale market and thus apply a low-price strategy has not been researched in the present paper and remains a challenge for future research.

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APPENDIX

Table A1: Pearson's correlations for CAFs⁽¹⁾ and hotel industry characteristic, Slovenian hotel industry

Statistics	Size	Category	Chain	Technology attitude	Destination	Ownership
Pearson's corr.	-.009	.310**	-.169	.024	-.216*	-.162
Sig. (1-tailed)	.474	.008	.099	.427	.049	.108
N	60	60	60	60	60	60

CAF⁽¹⁾: Competitive advantage factor

* Correlation is significant at the 0.05 level (1-tailed)

** Correlation is significant at the 0.01 level (1-tailed)

Table A2: Mean values for the importance of CAFs⁽¹⁾ broken down by industry characteristics, Slovenian hotel industry

	Structure in %	Contacts	Quality	Differen- tiation	Image	ICT	Contacts	Tech. Attitude
Total factor mean	100	4.46	4.17	3.93	3.79	3.68	3.09	3.33
Firm size								
- micro and small	48.33						3.37	3.51
- medium	36.67						2.81	3.18
- large	15.00						2.83	3.11
Category	0.00							
- *****	10.00	4.58	4.25	4.33	4.00	3.75		
- ****	46.67	4.62	4.41	4.14	4.03	3.98		
- ***	35.00	4.28	3.95	3.66	3.53	3.45		
- **	6.67	4.37	3.81	3.41	3.12	2.87		
Ownership	0.00							
Family	13.33						3.43	3.31
Other	86.67						3.03	3.32
International Chain	0.00							
- Yes	3.33							4.00
- No	96.67							3.30
Destination	0.00							
- Urban (cities)	28.33	4.23				3.91	3.35	
- Mountains	25.00	4.40				3.60	2.93	
- Sea	16.67	4.70				3.80	2.70	
- Spa	15.00	4.61				3.94	2.83	
- Other	15.00	4.61				3.00	3.55	

CAF⁽¹⁾: Competitive advantage factor

Note: only statistically significant mean values are presented (see Figure A1 for significance levels).