Performance and Information Technology: An Empirical Analysis Affecting the Hotel Sector in Mures County

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Abstract

The hotel sector needs to create, deploy, and improve information technology due to the constantly changing competitive environment. Since client contentment is crucial, hotels must adopt new technologies that help them comprehend what their patrons need to consume and that help them meet the demands of the present service delivery framework. In light of the situation, we believe that information technology-a claim backed by worldwide study in the field-should be a vital tool used by hotels in their efforts to improve performance. With the use of parametric and non-parametric statistical techniques, the current study thus demonstrates the significance of information technology implementation for managers as well as the relationship between the elements that characterize information technology in hotels in Murerॻ county and economic performance.

The findings partially validate the research hypotheses, thus the hotel sector in Murerت county ought to think about advancing information technology to support the sector. The study's conclusions highlight how crucial it is for hotel management to satisfy guests and produce results that are implicitly beneficial to the business.

Keywords: hotel industry, information technology, performance.

Introduction

For hotels to perform better financially, information technology ought to be a core resource. Research conducted in the field has supported this claim by emphasizing the positive relationship between information technology implementation and performance (Rai et al., 1997; Byrd and Turner, 2001; Kim et al., 2008; Abu Kasim and Badriyah Minai, 2009; Wu and Lu, 2012). The competitive climate that exists at the national level for travel service providers, including hotels, is strongly correlated with policy and strategy that are established through the service delivery process, which necessitates the adoption of new information technologies. Because the county of Murerॻ offers a diverse variety of travel reasons (medical, dental, spa, business, conference, entertainment, etc.), it contributes significantly to

the nation's tourism supply. This has increased competition in the hotel market. Despite the fact that economic factors affected every aspect of the economy, including the travel and tourism sector, the National Institute of Statistics reports that between 2009 and 2011, the number of visitors staying in hotels in Mureş county increased at an average annual rate of 13.71%. Due to the advantages of information technology-gaining devoted clients through the use of an application called Customer Relationship Management, increasing profitability, and streamlining procedures related to service delivery-this scenario led to a rise in competition and the requirement to employ it.

As a result, the focus that academics are currently giving to the hotel business on a national and worldwide scale, along with the statistical information that foreign organizations working in the field supply, highlight the significance of this research, which is directed in two directions: Performance in the hotel sector and information technology

In light of the situation, we would like to note that this study is a component of a larger quantitative research project that aims to enhance management of hotel services in Mureş county. The research includes the following elements: hotel staff services, food services, entertainment services, extra services, and customized services, as well as managerial techniques through service quality, human resources, and information technology

Information technology in the hotel industry

In order to boost production, maintain management decisions, and promote job efficiency, service providers have made significant investments in the development of information technology in recent years (Kim et al., 2008, p. 500). In order to increase staff productivity and customer happiness, hotels have implemented information technology (Ham et al., 2005; Lam et al., 2007).

Since technology has advanced steadily over the past few years, customer focus is becoming more and more important in Internet, software, and mobile technologies (Aldebert et al., 2011, p. 9).

At present, information technologies in Romania that serve hotel services are the following:

1. Front-office information systems type Fidelio. The system facilitates registering of tourists, inventory and management of rooms, marketing of tourist products or record of income (http://www.gtd20.ro/2010/01/sisteme-informatice-ce-deservesc-serviciile-turist ice/);
2. Systems that combine sales and booking services with information authorization, allowing data to be transmitted and received from the global distribution systems (GDS) Worlds pan and Amadeus (http://www.gtd20.ro/2010/01/sisteme-informatice-ce-de servesc serviciile-turistice/). These two systems are connected to the Internet, which is utilized by both hotels and customers. Additionally, the rapid growth of the Internet has had a significant impact on the hotel industry (Abrate et al., 2012, p. 160), leading to a rise in competition;

Hotel management information systems

a. The Windows version of the Medallion Property Management System (Medalion PMS) includes all the modules needed to manage a hotel's operations, regardless of the number of rooms or the structure of the establishment (http://www.tcnet.ro/solutii-hoteliere/ solutii-pentruhoteluri/expressoft-interface-manager.html). The system increases revenue, boosts profitability, and enhances the reputation of the hotel;

b. Another system that hotels utilize is Expressoft Interface Manager, which comes in the following versions: eXpresSoft Wireless Check (http://www.tcnet.ro/solutii-restaurant/ solutii-pentru-restaurante/expressoft-event.html), which enables waiters to use wirelessly connected PC pocket devices in place of notebook computers to accept orders directly from the customer table. eXpresSoft Event, a system that executes menus for parties, festal meals, catering, etc., and eXpresSoft Master, a system designed to provide precise inventory control and improve planning, management, and administration of resources (http://www.tcnet.ro/solutiihoteliere/solutii-pentru-hoteluri/medallion-pms.html);

3. Applications for customer relationship management (CRM), which stem from client orientation, are utilized by travel service providers, particularly in hotels, to strengthen the bond between the business and its patrons (Wu and Lu, 2012, p. 276). Some authors (Buttle, 2004; Abu Kasim and Badriyah Minai, 2009) contend that CRM is a strategy and is necessary to draw in and retain clients. CRM, according to Buttle (2004), is a fundamental business strategy that combines internal and external networks with procedures to generate and deliver value to customers and boost profits. towards the conclusion (Wu and Lu, 2012, p. 277). According to Minghetti (2003), the creation of a CRM application necessitates a thorough understanding of consumer behavior, wants, and preferences. Additionally, the development of new technologies is the primary driver of change in the hotel sector (Minghetti, 2003, p. 141).

In light of the situation, we believe that new information technology—such as the Internet, Fidelio, CRM, and Global Distribution System—has revolutionized the hotel sector and produced both favorable customer relations and financial outcomes.

Performance in the hotel industry

According to Laitinen (2002), the term "performance" literally refers to the assessment of metrics like profit, costs, and market share. Three dimensions are used by Philips (1996) in an effort to adopt a multidimensional approach in the evaluation of performances in hotels (Reichel and Haber, 2005, p. 683):

➢ Effectiveness: occupancy, average daily rate per room, etc.;
➢ Efficiency: profit; profitability of investments; and
➢ Adaptability: income from the successful introduction of new services and products; respectively.

Effectiveness: Sink and Tuttle (1989) point out that non-financial measures (such as employee and customer happiness) should be taken into account when evaluating

performance, as opposed to solely using financial indicators. (Page 148, Avci et al., 2011). According to Reichel and Haber (2005), hotel managers have specific goals and proprietary techniques for measuring performance, which they use to assess the effectiveness of their work. Performance can be measured both objectively and subjectively (Reichel and Haber, 2005, p. 683).

Given the situation, we believe it is crucial to note that hotel performance is still a relatively new idea in specialty studies conducted around the country, and managers create their own systems for assessing employee performance. Therefore, we employed within the research the general indicators used in evaluating performance, indicators that focus on the efficiency of work, respectively, such as: turnover for each category of activity, market share, occupancy of accommodations, value of income and value of spending.

Objectives, assumptions and methodology of research

The study objectives serve as the foundation for defining the research assumptions, which are then tested using statistical parametric and non-parametric techniques (table 1). The following software has been used to process the data: Microsoft Office Excel and SPSS 17.0 (Statistical Packages for the Social Sciences).

Table 1: Definition of objectives and research assumptions:

Objectives	Objective related assumptions	Research method used
O1: An examination of the significance of information technology implementation in hotels	H1: Information technology adoption has been deemed important or very important by at least 50% of the hotels included in the survey.	Test of binomials
O2: Examining relationships between performance and the characteristics that characterize information technology in hotels	H2: Performance metrics and information technology implementation in hotels are strongly connected	parametric correlations of Pearson

The following statistical techniques are applied when analyzing and interpreting data:

➢ To determine the strength of a linear relationship between two quantitative variables, use the parametric statistics tool Pearson correlation (Novak, 2004, p. 127); and
➢ Using study data, the binomial test (a non-parametric technique for evaluating statistical hypotheses) verifies research hypotheses related to the binomial distribution, p and q, for a collectivity (Gravetter and Wallnau, 2009, p. 658).

Description of studied population and research variables

The 42 hotels in the county of Mureк comprise the analyzed population. The small size of the studied population (42 hotels) necessitated extensive research for this study, which used data from the Ministry of Regional Development and Tourism in Romania's "List of tourist

reception structures with classified accommodation functions" report. Data were gathered from June to September of 2012.

A noteworthy phase of the study involved pre-testing questionnaires for each classification category of hotels in Târgu-MureŀŸ, which was conducted in May 2012 with participation from a management representative. This led to the modification of certain variables, and this time, the time allotted for filling out the questionnaires was also tested.

The elements studied within the research are the following

- Aspect of information technology implementation in hotels using the subsequent factors: CRM.
- software programs, common software (Word, Excel, databases), Fidelio type front-office information systems
- systems of record for reservations (Worldspan, Amadeus, Galileo, etc.), Medallion PMS hotel management systems, platforms such as eXpresSoft, Utilizing some specialist websites that offer us online promotion and consultation;
- The study's hotels' performance as measured by the following indicators: Using the space in lodgings
- Market share, Turnover for food services, Turnover for lodging services, and Turnover for other services

Volume of income and Volume of expenditure.

Respondents (hotel managers) have been asked to describe the importance rate of factors on a Likert scale ranging from 1 (not important) to 5 (extremely important) in order to better understand the dimension of information technology.

Respondents were asked to list the efficiency rate of indicators using a range scale (from very small - below 20%, to very big - over 80%) and to indicate the value of income and expenditure for 2011 using the same range scale (from below 0.5 million, to over Lei 15 million) in order to assess the performance of the hotels included in the study.

Results of research

We believe that it is critical to present the findings of the descriptive analysis for the variables that make up the information technology dimension of the research in order to test the research hypotheses.

As a result, the following characteristics of the analysis done over factors characterizing information technology inside the hotels included in the study are present (figure 2):

- Variables have produced the highest average results in the study. Hotels believe these variables to be very significant for their work; we use ordinary software (Word, Excel, databases), and we use services of some specialized sites that provide us online consultancy and advertising, 4.64 and 4.55, respectively.

> ➤ Changeables We employ the Medallion PMS hotel management system and the eXpresSoft system, which both had the lowest average survey scores-1.5 and 1.6, respectively-indicating that very few hotels use these kinds of IT for hotel administration.
> ➤ Changeables We have a built application called Customer Relationship Management, and we use front-office information systems like Fidelio and booking-specific information systems like Worldspan, Amadeus, and Galileo. We also received poor average survey scores, between two and three.
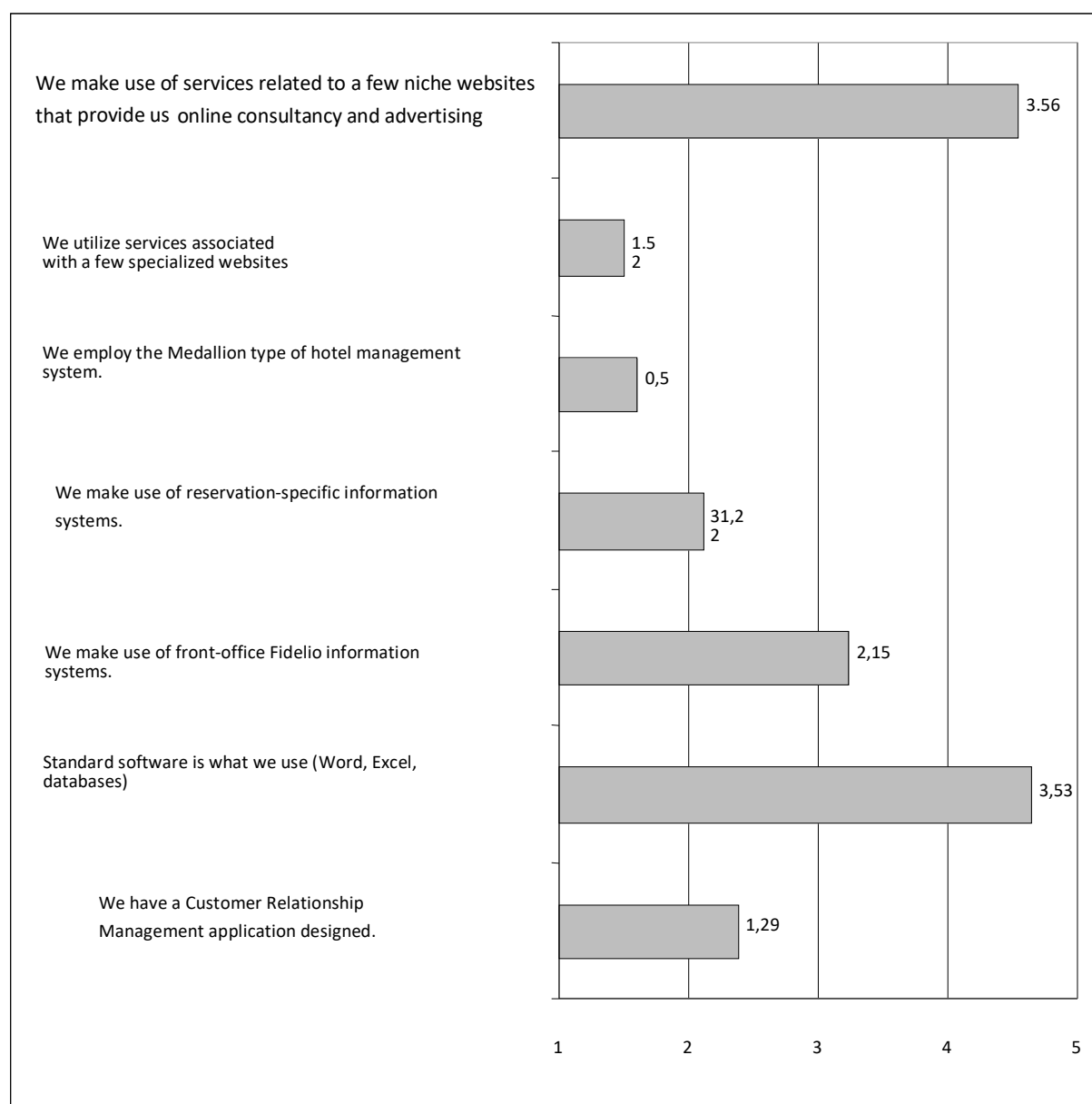
Figure 1: Graphical representation of average score achieved by each variable in category *information technology* within the entire study

The binomial test was used to evaluate the H1 assumption, determining if 50% of the hotels included in the study had information technology-focused applications deployed (table 2).

Table 2: Results of binomial test for variables that define information technology in surveyed hotels

Variables	Group	Criterium	Absolute frequency	Noticed weight	Tested percentage	Level of statistical significance
TesWe have a Customer Relationship Management application designed.	1	<= 5	6	.86	.50	.00
	2	> 4	36	.14		
	Total		42	1.00		
Word, Excel, and databases are the common applications that we utilize.	1	<= 4	27	.64	.50	.045
	2	> 4	15	.36		
	Total		42	1.00		
We employ Fidelio front-office information systems.	1	<= 4	14	.33	.50	.045
	2	> 4	28	.67		
	Total		42	1.00		
We make use of booking-specific information systems, such as Galileo, Amadeus, and Worldspan.	1	<= 4	3	.07	.50	.000
	2	> 4	39	.93		
	Total		42	1.00		
We employ the Medallion PMS kind of hotel management system.	1	<= 4	4	.10	.50	.000
	2	> 4	38	.90		
	Total		42	1.00		
We employ eXpresSoft-type systems.	1	<= 4	42	1.00	.50	.000
	Total		42	1.00		
We employ the services of a few niche websites that offer us online advertising and consulting.	1	<= 4	26	.62	.50	.164
	2	> 4	16	.38		
	Total		42	1.00		

Based solely on variable findings from the binomial test, the test-related assumption has been validated. We use databases, Word, Excel, and other common software. We also use services from a few specialist websites that offer us online advertising and consulting, the latter of which has a statistical significance of a=0.16. As a result, the assumption is partially verified.

Table 3 displays the findings of our usage of the Pearson parametric correlation coefficient to assess the degree and direction of the relationship between the information technology category variables and the performance indicators in hotels in order to evaluate the H2 assumption.

Table 3: Results of Pearson correlation analysis between information technology category and efficiency indicators in hotels

VARIABLES								
		Occ of accommodation						
				Market share		Income		Expenditure
We have a developed	Correlation	.326[*]	.348[*]	. 258	.328[*]	.364[*]	.448[**]	.484[**]
Customer Relationship Management	Level of significance	,035	,024	,099	,034	,018	,003	,001
	N	42	42	42	42	42	42	42
	Correlation	-,136	-,136	-**.333**[*]	-,108	-,154	-,237	-,222
software (Word, Excel, data bases) front-office	Level of significance	,391	,391	,031	,495	,330	,131	,159
	N	42	42	42	42	42	42	42
	Correlation	,079	,138	-,019	,043	-,020	,200	,197
Software Fidelio information	Level of significance	,617	,382	,906	,786	,898	,205	,212
	N	42	42	42	42	42	42	42
	Correlation	-,091	-,068	-,206	-,184	-,192	,159	,212
Systems used for bookings (Worldspan, Amadeus, Galileo etc.) hotel management system PMS	Level of significance	,565	,667	,190	,244	,223	,313	,177
	N	42	42	42	42	42	42	42
	Correlation	,156	,257	,206	,224	,252	**.390**[*]	**.452**[**]
We use systems type	Level of significance	,325	,100	,190	,154	,107	,011	,003
	N	42	42	42	42	42	42	42
	Correlation	-,003	,058	,119	,143	,088	,146	,223
eXpresSoft	Level of significance	,985	,714	,452	,366	,581	,355	,155
	N	42	42	42	42	42	42	42
We use services	Correlation	,166	,016	-,085	,138	,052	,027	-,011

of Some specialized sites that provide us online advertising	Level of significance	,292	,922	,593	,382	,741	,866	,943
	N	42	42	42	42	42	42	42

** Significant correlation at level 0.01
*Significant correlation at level 0.05 N = number of employees

The findings highlight the fact that values that are statistically significant for the study have only been attained for the following variables:

➢ Positive correlations of medium strength between the variables: we use the hotel management system Medallion PMS and the expenditure indicator (0.452); we have a developed application for customer relationship management and indicators for income (0.448) and expenditure (0.484);

➢ We use the hotel management system Medallion PMS and Income (0.390) indicator; we have a developed application Customer Relationship Management and Occupancy (0,326), Turnover for accommodation services (0.348), Turnover for other services (0.328), and Market share (0.367) indicators.

➢ Low intensity negative correlation between the variables: Turnover for food services (-0.333) and Word, Excel, and databases are used. We note that this assumption is somewhat supported by the results.

Conclusions

Both the national decision-making authorities and the hotel managers in Mureş County value individual empirical contributions.

The analysis's findings highlighted the fact that just two factors-using specialized websites for online advertising and consulting and standard software like Word, Excel, and databases-that characterize information technology in the Mureş County hotel industry have been rated as important or extremely important by more than 50% of managers. Furthermore, the study has highlighted low intensity positive correlations for the following variables: we use the hotel management system Medallion PMS, we use standard software (Word, Excel, databases), and we have a developed application called customer relationship management. For all other variables, the results have Individual empirical contributions are valued by both the Mureş County hotel managers and the national decision-making authorities.

The analysis's conclusions brought to light the fact that just two characteristics of information technology in the Mureş County hotel industry-using specialized websites for online advertising and consulting and standard software like Word, Excel, and databases—have been rated as important or extremely important by more than 50% of managers. Low intensity positive correlations have also been found in the study for the following variables: we use databases, Word, Excel, and the hotel management system Medallion PMS; we also have a developed application called customer relationship management. Regarding every other variable, the outcomes have

We believe that the research boundaries are where future research opportunities originate. Due to the limited size of the surveyed population, we will be able to include a greater number of hotels from a wider range of geographic locations in our future research. Furthermore, we believe that future research on hotel ownership is necessary to determine whether information technology deployment differs amongst hotels that belong to an international hotel group.

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