Technologies implemented in the business environment – smart pillar for enhancing organisational performance

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Abstract

This paper takes us on a methodological journey, analysing the efficiency of implementing information technologies in the business environment. In the context of digital transformation of the SMEs in the EU, Romania, and the Republic of Moldova emerges the necessity to focus on implementing information technologies in the business area, as the primary factor of boosting organisational performance. The aim of this research is to shed light on the possibilities of implementing information technologies in the business environment of Romania and the Republic of Moldova. The methodology of this scientific endeavour has been geared towards using multiple methods of research, among which stands out the quantitative research, the inquiry used as a research tool, namely a questionnaire. The results of the research show a direct interconnection between implementing information technologies and customer satisfaction, particularly organisational performance. Thus, organisations aspiring to grow their performance should remodel their management system in terms of implementing new information technologies which will increase customer trust, improve client satisfaction, and gain customer loyalty to the products/ services provided by the company concerned.

Keywords: information technologies, relationship management, organisational performance, SMART pillar

Introduction

According to the Pew Research Center (2015), the use of smartphones in the USA has gained momentum in the past years. Thus, in 2011 only a third of the American adults had their own smartphones, while in 2015, more than 64% of the same category had some type of smartphone (Pew Research Center, 2016). Further, according to the statistics, by 2022 the number of smartphone users

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is expected to reach 3,08 billion. The use on a large scale of the mobile technology has led to the inception of an 'application culture".

As the mobile phone has changed from a device based on voice to a multi-channel device with Internet access, an explosion of mobile apps was registered (Purcell *et al.*, 2010). As stated in mobiThinking (2013), over 800.000 apps have been developed and activated, and the apps were downloaded 81,4 billion times from mobile app stores around the world. Mobile apps have infiltrated the business environment since their emergence, facilitating the ease of communication between clients and organizations. The use of mobile apps assists companies in terms of building a solid healthy foundation with their clients, following the feedback provided by the companies' offers.

This paper embraces a diverse range of theoretical and methodological analyses to determine the contribution of information technologies to the tourism industry. The object of research is the Hilton Honors mobile application developed by the Hilton chain. The aim of this scientific endeavour is to investigate the efficiency of this mobile application developed and used *by* Hilton Hotels. Accordingly, we have aimed for the following:

O1: *evaluation of the customer perception regarding the usefulness of the mobile app developed by Hilton Hotel*

O2: *evaluation of customer trust (perceived security and risks) regarding the usefulness of the mobile application concerned*

O3: *identification of tourist expectations regarding the Hilton Honors mobile app.*

The theoretical approach of this paper navigates through the most important concepts of the information technologies used in the tourism domain and the main methods, techniques, and particular features employed for assessing customer satisfaction in the hotel business. Further, the methodological approach was set based on the quantitative research approach.

The questionnaire comprises 28 questions, ranging from simple to complex ones, which helped us collect the necessary data and evaluate the targeted indicators. The data were statistically processed and interpreted, pointing out the correlations between the obtained results. In terms of data processing software, it was used the statistical tool SPSS, and, based on it, the hypotheses of the research were tested. Finally, general conclusions were drawn.

1. Literature Review

Mobile phones are communication devices that provide a wide range of functions. They have become increasingly influential and omnipresent due to their portability and multitude of benefits,

not to mention the active part played by social media. A completely new environment has been created by the mobile applications that emerged in the 21st century, facilitating the ease of communication and access to different services. With the emergence of mobile apps, people interact and communicate, exchange and share novel ideas and materials, generated through the use of the Internet (Purcell *et al*., 2010). Particularly, for a large number of mobile phone users, smartphones are nowadays essential devices connecting them to the online world and allowing them nearly unlimited access to online data. The apps for smartphones are designed to deliver a specific task for the user and can improve numerous mobile services.

Additionally, since corporations are able to make a constant contribution to the improvement of app services, this tendency provides consumers with more opportunities for using the full potential of smartphones, which has a positive impact on the fast development of commercial and non-commercial applications (Dickinson, 2014).

The apps are highly efficient instruments for storing large amounts of data, from video clips to catalogues. Users can get useful information whenever they wish with the push of a button by simply being connected to the Internet and through mobile apps. Furthermore, once users install apps on their smartphones, they can deliver various functions such as reading relevant content for businesses and managing bank accounts or payrolls (Campbell, 2011).

It is necessary to highlight that research in this area, particularly on online business, has approaches pointing out the ex-post stage which can be transmitted live. Indeed, social media, online shopping sites, and hotel websites allow customers to post comments about the experience of the service/ product, both in a post-consumption stage and in real-time (Brown and Broderik, 2007). Satisfaction, as an attitude measure and not a time-related one, does not have a precise moment when it can be expressed by customers. Nevertheless, these new instruments deliver quite fast the evaluation process of customer satisfaction, which makes them extremely influential to company management.

The evolution of smartphones has also influenced the tourism and hospitality industry since people are using their smartphones to plan trips and look up information (No and Kim, 2014; Wang, Xiang and Fesenmaier, 2016). Traditionally, many tourism and hospitality corporations used printed brochures to provide information about their properties and promote a wide range of trip-related products (Holloway and Plant, 1992; Yamamoto and Gill,1999).

However, the supply and usefulness of printed brochures are limited. Consequently, numerous hospitality corporations have switched to digital services such as websites since customers can easily access hotel websites, and look up information about hotels through their portable devices such as laptops, tablets, and smartphones.

As the use of smartphones grew, the development and utilization of applications addressing hotel clients have expanded as well. These applications offer updated info about hotels, detailed maps, and online reservation services. Particularly, a good many hotel companies, based in the U.S.A., have incorporated the use of travellers' smartphones in their routine commercial operations through mobile apps („Hilton HONORS app", n.d., „Hyatt Mobile Experience", n.d., Marriott - The Perfect Travel CompanionTM", n.d.). Additionally, over their stay at the hotel, some apps provide unique experiences such as controlling the room temperature and turning clients' smartphones into a remote TV set.

The guests' experiences of using hotel apps are also valuable data sources since their use can function as a good criterion to assess whether the guests' expectations have been met and analyse the factors leading to customer loyalty in terms of delivered hotel services.

From the perspective of a hotel guest, the possibility of seeing the hotel lobby, guest rooms, and the facade of the accommodation building along with the opportunity of using a long list of convenient services chosen from the hotel applications are experiences meant to set up guests' expectations to their own satisfaction and deliver real experiences in terms of hotel products and services.

According to Carlino (2015), in terms of experience customisation of hotel app users, hotel applications play a key part, namely delivering the best way of integrating and customizing the products/ services offered in a digital context. By experiencing the services of the hotel app, the hotel guests can come up with valuable experiences in their own digital environment which may positively impact customer satisfaction and also influence the intent of reusing the hotel application.

Mathwick *et al*. defined the experiential value as "a perceived preference that is relative to the attributes of the products or performances of the service derived from the interaction occurring within a consumption frame which facilitates or blocks the reach of goals or the purpose of clients" (Mathwick *et al*., 2001). As stated by Mathwick *et al*., the experiential value can be broken down into 2 main dimensions, namely the intrinsic value and the extrinsic value. The intrinsic values include the aesthetics and playfulness features which focus on the internal factors of the hotel app users (Mathwick *et al*., 2001).

The hotel guests perceive the content describing the hotel rooms and recognise the atmosphere of the facilities provided through their senses. Thus, they can experience immediate satisfaction due to their intrinsic values. The extrinsic values comprise features such as service excellence and rentability of clients' investment, as well as external stress factors or other visible factors encountered by the hotel guests.

The users of the hotel application examine the quality or efficiency of the hotel apps and create extrinsic value based on proven expertise and task-related performance (Mathwick *et al*., 2001). Furthermore, the users of the hotel app perceive what they get in the exchange process by using the hotel application, which translates as active or inactive investments in services.

In the pre-travel stage, the hotel guests are usually concerned with the app usability for smartphone regarding information collection, notifications about the availability of hotel rooms, meals and reservations, upgrade for hotel rooms, and customer loyalty programs. Meanwhile, during guests' stay, they have access to different tech facilities provided by the hotel app, such as room temperature control, requests for various room facilities, room service included, and the possibility of turning their smartphones into TV remotes. The hotel guests can also create a personal travel profile used as the basis for their information and preferences in terms of travelling.

These experiences can thus lead to customer satisfaction related to the hotel wireless service and improvement of the post-stay relation. In what concerns the hotel business, the platform dedicated to smartphone applications can be designed to provide a more effective and innovative online service before, during, and after the guests' stay (Adukaite *et al*., 2013; Anuar *et al*., 2014). In the hotel applications with images and text, it is possible to add subcategory lists with hotel facilities such as pools, fitness centres, restaurants, bars, saunas and spas, and conference rooms.

Thus, hotel guests can get a large amount of information about the hotel through numerous categories of services provided by the application.

In terms of using mobile technologies, the hotel units have the possibility to make use of various factors which have a direct influence on customer satisfaction such as:

- *Application Atmosphere* – each hotel unit can create the application atmosphere and thus provide easy and fast access to hotel services.
- *Ease-of-Use* – this factor influences directly tourist satisfaction regarding the hotel application for smartphones since each hotel needs to develop its own application and thus provide the possibility of using it easily and swiftly by every type of user.
- *Perceived Usefulness* – for developing the mobile application, the hotel unit needs to identify the elements which bring unity to the hotel unit. For instance, the reservation made by the mobile app comes with certain benefits, such as discounts, extra benefits, etc.
- *Perceived Risks* – the hotel unit which develops the app must also identify certain risks and assess them as well, and try to eliminate them as much as possible to maximize their customer satisfaction.

- *Perceived Security* – the use of the mobile app by tourists should be a safe experience, and provide security in terms of client data and other information as well.

- *Performance of Expectances* – the use of the mobile application by tourists should both meet and inspiretheir client's expectations at the highest possible level. Tourists should experience the performance feeling at the highest level.

- *Usage Habit*– the hotel unit should encourage tourists to use the mobile app to get used to it which will eventually produce better customer satisfaction in terms of using the mobile app.

- *Friability and Receptivity* – this factor should be prioritised by the hotel unit if it wishes to increase customer satisfaction in terms of the mobile application. The hotel unit through its mobile app should meet the tourists' necessities, and even further, anticipate them and their expectations as well. Each hotel unit can develop its own mobile app and thus gain tourist loyalty for the delivered services. Accordingly, this platform can be used in an efficient and interactive way as it is a powerful tool that delivers valuable experiences, provides customer satisfaction, and encourages recurring reservations. The use of the hotel mobile app will improve the customer experience and satisfaction which are the best predictors of future behaviour (Lee *et al*., 2018; Jeong and Shin, 2019).

2. Research Methodology

In an unstable and competitive environment, the information amount should be constant as information reduces the risk of adopting decisions. The study of the market is the most complex and important marketing research. Any decision related to the activity of a company should be based on a thorough analysis of the market.

Similarly, the adjustment of the company to the environment of its activity involves the use of a significant amount of information. Hilton Hotel was selected as the *object of research*, the place where the research was performed and the data were collected. The Hilton Hotel is an accommodation unit that stands out through its notoriety, and its customer trust due to the quality of provided services, and which, over time, has also distinguished itself from the rest by features such as competence and an attractive quality-price ratio.

Figure 1. Model of quantitative research
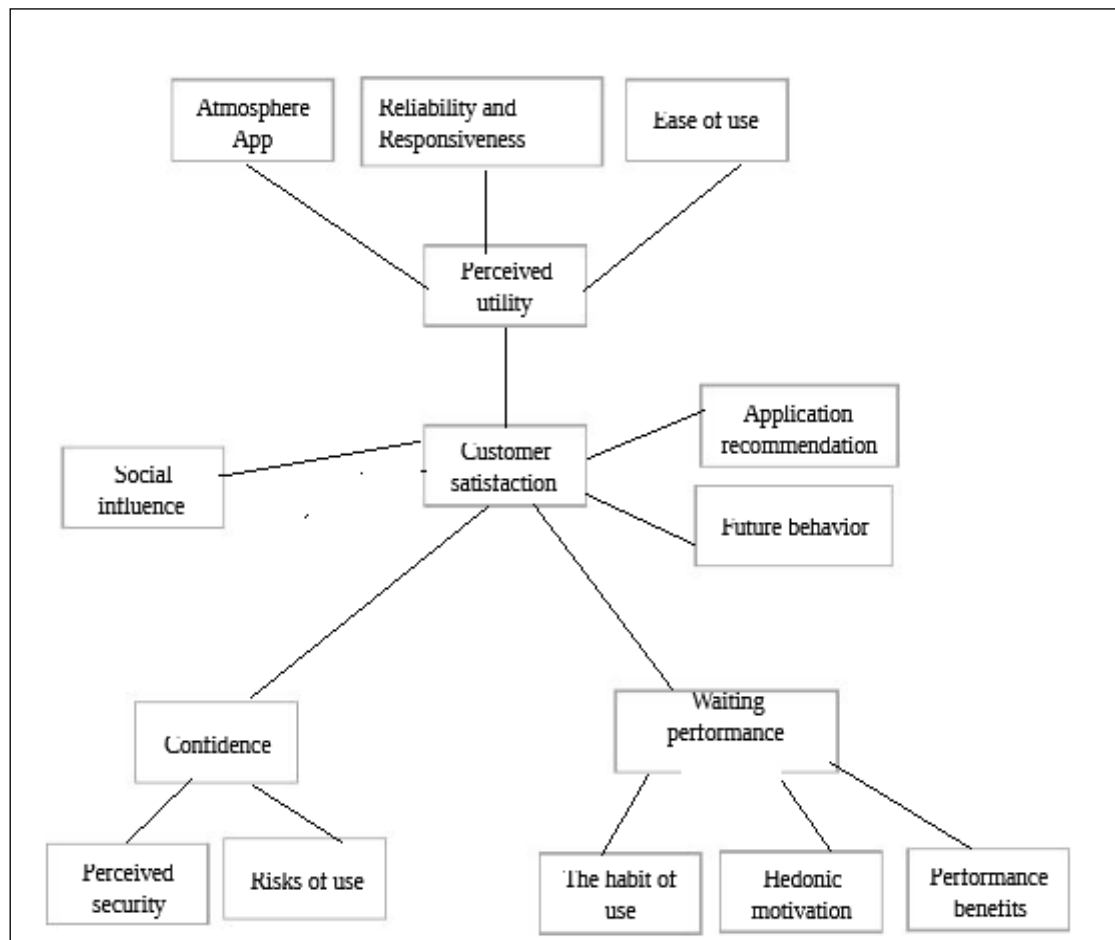
Source: developed by authors

During our research, we have aimed for getting relevant and useful information about:

- evaluation of tourist satisfaction in terms of using the mobile application
- research of the usage duration of the mobile app by tourists
- assessment of the social factors influencing the customer satisfaction in terms of application use
- identification of tourist perception about the friability of the app, their trust in using the app, and also the risks involved in using the app
- evaluation of the usage habit, hedonic motivation, performance benefits
- identification of tourists' future behaviour in using the mobile app.

The research method is inquiry. The questions included in the questionnaire are introduced in Google Forms as graphics, tables, and figures. This method of data collection was quite convenient and provided safety, trust, and speed. The questionnaire was applied to the tourists checked in at the

Hilton Hotel, naturally to those willing to answer the questions included in our survey. Later, the obtained results were interpreted.

The research instrument is the questionnaire, which is structured into 4 main sections, namely:

I: Informed Consent – the purpose of research and the generated data about the research are presented in this section

II: Use of mobile applications for accommodation – this section comprises 4 questions which help sketch the tourist profile regarding the use of apps for accommodation

III: Tourist behaviour towards Hilton and the Hilton Honors mobile app – this section includes questions from 5 to 22 which helped us investigate customer satisfaction, expectations, trust, and motivation towards Hilton Hotel and Hilton Honours app.

IV: *Identification of the respondents* – this section comprises questions from 23 to 28, and helped us identify the respondents according to age, gender, level of education, income, occupation, and social background.

On the whole, the questionnaire has 28 questions, ranging from simple to complex ones, which are focused on the achievement of the research objectives and validation of the hypotheses of the research. Altogether, there were 314 respondents to this survey. In the questionnaire, there are also open questions, where respondents had the possibility to express their own opinions regarding the reference environment, as well as closed questions, where respondents could pronounce themselves on the elements under investigation. When building up the questions, we have respected different scales such as ordinal scales, nominal scales, and the Lickert scale.

3. Research Results

Accordingly, in the following images we will present the studied sample according to variables such as gender, net monthly income, age, and country of origin. Further, we can notice that all the data with the variable concerned is in Figure 2.

As we can notice in Figure 2, the female respondents are the dominant category of respondents (52,17%), followed by male respondents (42,75%), while 5,07% of the respondents did not want to mention their gender.

Figure 2. Distribution of the sample according to demographic criteria
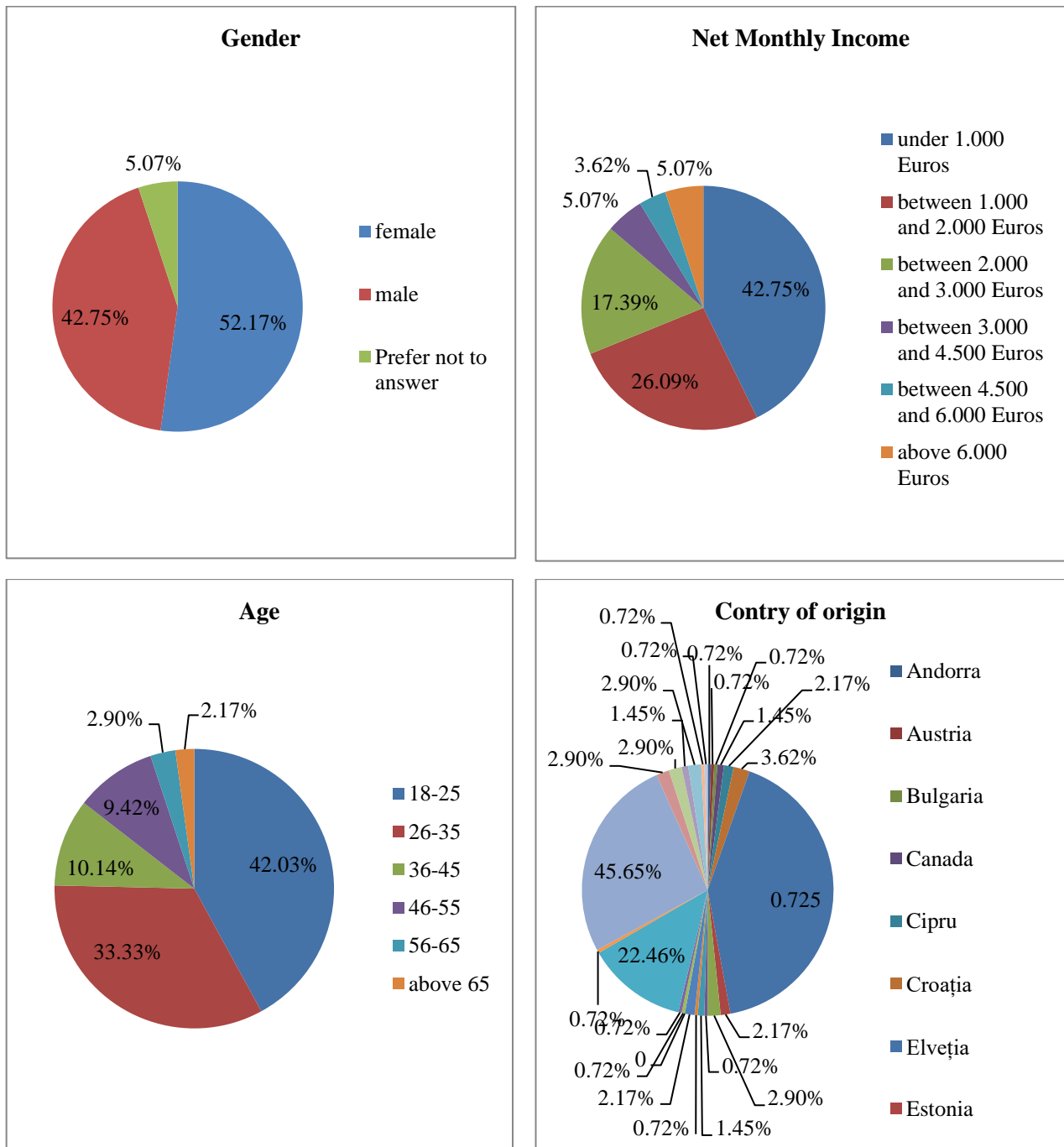
Source: developed by authors

Regarding the Age variable, the first positions are taken by the respondents between 18 and 25 years old (42,03%), followed by the 26-35 age category (33,33%), and the last position is occupied by the above 65 years old category (2,17%). On the matter of Net Monthly Income, we can firmly state that most respondents (42,75%) have an income under 1,000 Euros, followed by the category of persons whose income ranges between 1,000 and 2,000 Euros (26,09%). Further, 17,39% of the

respondents declared their income between 2, 000 and 3, 000 €. Only 5.07% of the interviewed persons have an income between 3,000 and 4,500 € or above 6.000 €. The lowest percentage (3.62%) goes to the persons whose income ranges between 4,500 and 6,000 €. The analysis of the Country of Origin variable reveals that most clients who responded to our questionnaire are Romanian citizens (45,65%). Naturally, there were also clients from all parts of the world such as Moldova (22.5%), Hungary (3.6%), Italy (2.9%), Canada (2.9%), Austria (2.2%), Switzerland (2.2%), U.S.A (2.2%) Cyprus (0.7%), Spain (0.7%), and France (0.7%). The following factor under investigation is the *Performance of Customers' Expectations* related to the Hilton Honors app. Thus, the score obtained by this factor is 3,93, equivalent to the Agreement version of the answer, close to the Total Agreement version. It stands out the scale related to the maximum control during the travelling period with an average of 4.07. Further, the factor related to meeting, in due time, customers' needs and that the app is useful in everyday life reaches the averages of 3.99 and 3.91. The last place is occupied by the feature related to the increase in productivity with an average of 3.82. The Cronbach Alpha coefficient is 0.946, which stands for a high level of trust.

Table 1. "Expectation performance" factor of the Hilton Honors app

Expectation Performance	Total disagreement	Disagreement	Neither, nor	Agreement	Total agreement	Average
The use of the app is useful in everyday life	1.4%	5.1%	22.5%	42.8%	28.3 %	**3.91**
The use of the services generated by the app increases the chances of carrying out important tasks	2.2%	5.8%	23.9%	39.9%	28.3%	**3.86**
The use of the app increases productivity	2.2%	8%	23.2%	39.1%	27.5%	**3.82**
The app is flexible in terms of meeting in due time personal needs	2.2%	4.3%	15.9%	47.1%	30.4%	**3.99**
The app provides greater control while travelling	2.9%	2.2%	14.5%	45.7%	34.8%	**4.07**
					Average score	**3.93**

Source: data processed by authors

If we analyse the data presented in table 2, we can observe that *Usage Habit* has a powerful influence on the decision of using the Hilton Honors mobile app, amassing a score of 4.17, which is equal to the answer version Agreement. The most important 2 items of the factor concerned are the ease of understanding of the application (4.19) and the interaction with the app is clear/ user-friendly

(4.17). The most important item is the multi-functionality of the app which gathered an average of 4.14. The Cronbach Alpha coefficient has a value of 0.954, showing an advanced level of trust.

Table 2. "Performance benefits" factor of the Hilton Honors app

Performance Benefits	Total disagreement	Disagreement	Neither, nor	Agreement	Total agreement	Average
It was easy to learn how to use the app	1.4%	2.9%	13%	40.6%	42 %	**4.19**
The interaction with the app is easy to understand/ user-friendly	1.4%	3.6%	10.9%	44.9%	39.1%	**4.17**
I save time and money by using the app	2.2%	1.4%	13%	44.9%	38.4%	**4.16**
I have the capacity to use multiple services/ run different processes provided by the app	1.4%	2.9%	15.2%	41.3%	39.1%	**4.14**
					Average Score	**4.17**

Source: data processed by authors

In the following paragraph, it is described the *Hedonic Motivation* factor of the Hilton Honors mobile application, which got the average score of 4.01, equivalent to the Agreement answer identified in the questionnaire. The lowest average is recorded by the item determining that the Hilton Honors app can be seen as an entertainment source as well (3.86). The most appreciated scales, totalling an identical average of 4.07, are: "Hotel reservation by the app is fun" and "The app feature evokes happiness". The Cronbach Alpha coefficient has a value of 0.915, indicating a high degree of trust.

Table 3. "Hedonic motivation" factor of the Hilton Honors app

Hedonic Motivation	Total diagreement	Disagreement	Neither, nor	Agreement	Total agreement	Average
Hotel reservation through the app is fun	1.4%	2.9%	19.6%	39.1%	37%	4.07
The use of services of choice and hotel reservation are pleasant and simple experiences compared to other apps	2.2%	1.4%	16.7%	50%	29.7%	4.04
The app can be regarded as a source of entertainment	3.6%	3.6%	26.8%	35.5%	30.4%	3.86
The app features (design, visual elements, animation, etc) evoke happy feelings	2.2%	0%	22.5%	39.9%	35.5%	4.07
					Average Score	**4.01**

Source: data processed by authors

The next factor is *Social Influence* with an average score by 3.83, representing the answer version of Neither, nor. The highest average is recorded by the item showing that friends have a powerful influence on the use of the app concerned (3.89). Less appreciated is the factor describing that family has also an influence on the use of the app (3.78). The Cronbach Alpha coefficient records a value of 0.948, which stands for a high level of trust.

Table 4. "Social influence" factor of the Hilton Honors app

Social Influence	Total disagreement	Disagreement	Neither, nor	Agreement	Total agreement	Average
I think that the persons who matter to me (family) should use the app	2.9%	6.5%	29.7%	31.2%	29.7%	**3.78**
The persons whose opinion I value (friends) think that it is a good idea to use the app	1.4%	5.1%	26.1%	37.7%	29.7%	**3.89**
The persons who influence my behaviour expect that I use the app	3.6%	3.6%	27.5%	38.4%	26.8%	**3.81**
					Average Score	3.83

Source: data processed by authors

According to the data from Table 5, we can notice that the *Usage Habit* factor has registered an average score of 3.67, equivalent to the Neither, nor version of the answer. The average of 3.86 is got by the scale representing the fact that respondents plan on time their stay with the help of the app concerned. By contrast, the average of de 3.36 accumulates the item denoting that respondents are dependent on the Hilton Honors application. The Cronbach Alpha coefficient has a value of 0.890, which stands for a high level of trust.

Table 5. "Usage habit" factor of the Hilton Honors app

Usage Habit	Total disagreement	Disagreement	Neither, nor	Agreement	Total agreement	Average
Using the app has turned into a habit	3.6%	6.5%	24.6%	38.4%	26.8%	**3.78**
I feel like i need to use the app for planning my trips ahead	2.2%	8.7%	19.6%	40.6%	29%	**3.86**
I am sort of dependent on the app/ using the app	8.7%	14.5%	27.5%	30.4%	18.8%	**3.36**
					Average Score	3.67

Source: data processed by authors

Recommendation of Use factor totals an average score of 4.1, equivalent to the Agreement version of the answer. The first position is occupied by the item totalling a score of 4.24, which determines the future use of the application, while the second place is taken by the item with a score of 3.96, which represents the intensification of using the Hilton Honors app. The Cronbach Alpha coefficient had a value of 0.851, which shows a high degree of trust.

Table 6. "Future behaviour" factor of the Hilton Honors app

Future Behaviour	Total disagreement	Disagreement	Neither. nor	Agreement	Total agreement	Average
I will use the app in the future	1.4%	2.2%	7.2%	49.3%	39.9%	**4,24**
I will use more the app (more benefits. services. etc.)	1.4%	4.3%	23.2%	38.4%	32.6%	**3,96**
					Average Score	**4.1**

Source: data processed by authors

In the table below it results that the Recommendation of Use factor totals a middle score of 3.68, that is equivalent to the Neither, nor version of the answer.
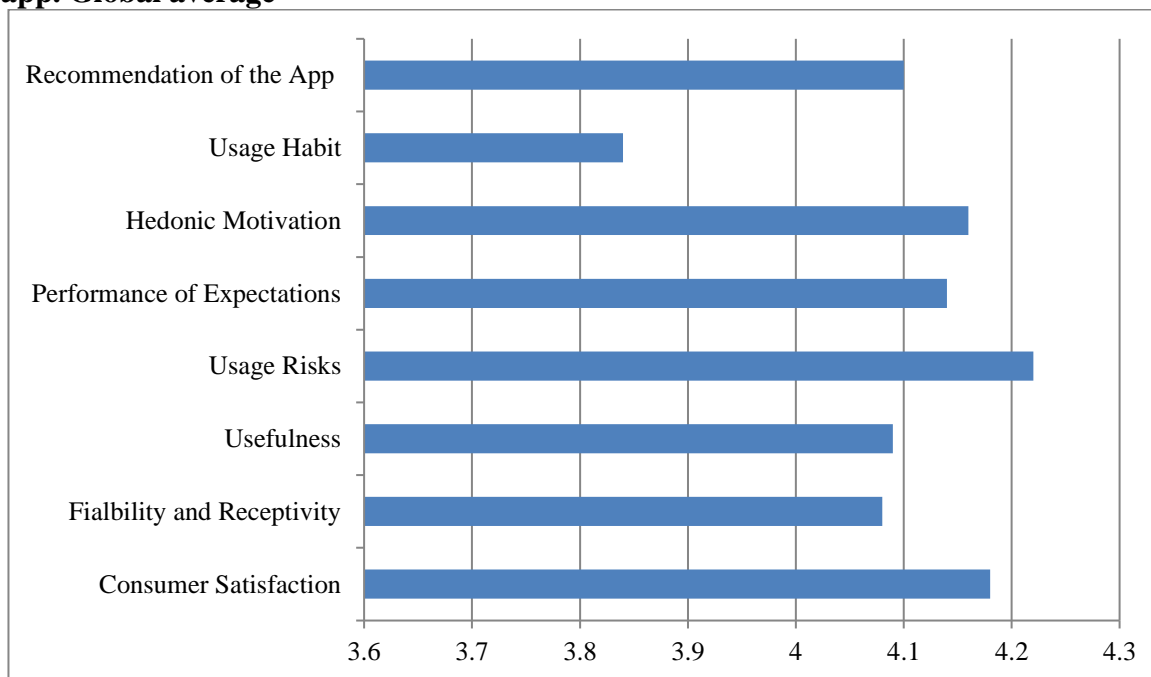
Table 7. "Recommendation of use" of the Hilton Honors app

	To a very little extent	To little extent	Neither, nor	To a great extent	To a greater extent	Average
Recommendation of use	6.5%	8%	15.9%	50%	19.6%	**3.68**
					Average Score	**3.68**

Source: data processed by authors

According to the Figure 3 below, it can be seen the factors influencing consumers attitude related to the Hilton Honors app. The strongest attitude is represented by the following factors *Ease-of-Use* (4.32), followed closely by *Usefulness* (4.22), and going on with *Customer Satisfaction* (4.18), and finally *Trust* (4.15). The weakest attitude is represented by factors such as *Usage Risks* (3.34), *Usage Habit* (3.67), and *Recommendation of the App* (3.68).

Figure 3. Factors influencing the consumer attitude towards the Hilton Honors mobile app. Global average

Source: developed by authors

Further on, we have chosen to do a simple linear regression to test the relation between *Customer Satisfaction* (independent variable) related to the Hilton Honors mobile app and *Recommendation of the App* (dependent variable). In the table, it can be observed that the level of *Consumer Satisfaction* has a significant statistical impact (Sig = 0.000) on the *Recommendation of the App*, which explains 14.4% of its variation (R Squared = 0.144) (Table 8).

Table 8. Simple linear regression: ANOVA estimation of "Recommendation of the App"

Model Summary 1	R	R Squared	Sig
	0.380	0.144	0.000
Coefficients Costumer satisfaction	Unstandardized coeff.	Standard coeff.	Collinearity
Model constant	1.494	0.380	1.00

Source: developed by authors

According to the analyses run, *Customer Satisfaction* has a significant statistical impact on the *Future Behaviour* related to the Hilton Honors mobile app (Sig = 0.000), which explains 45.6% of its variation (R Squared = 0.456).

Table 9. Simple linear regression: ANOVA estimation of "Future Behaviour"

Model Summary	R	R Squared	Sig
1	0.675	0.456	0.000
Coefficients	Unstandardized coeff.	Standard coeff.	Collinearity
Costumer satisfaction			
Model constant	1.190	0.675	1.00

Source: developed by authors

Additionally, we have performed multiple regressions, where the dependent variable is *Perceived Trust*, and the independent variables are *Perceived Security*, *Usage Risks*. To establish to what extent a group of factors influences the attitude towards the Hilton Honors mobile app, we have used the multiple linear regression analysis.

In the table below we can identify an R Squared of 0,808, which is equivalent to a percent of 80.8% from the attitude variation towards *Perceived Trust* explained by the independent variables (*Security and Usage Risks*). The model is statistically significant (ANOVA F = 127.375 and Sig. = 0.000, Table 10).

Table 10. Multiple linear regression between dependent variable (Perceived Trust) and independent variables (Security and Usage Risks) (ANOVA analysis - initial case)

Model	R	R Squared	Model	Sum of Squares	Df	F	Sig
Summary	0.808	0.654	ANOVA		2	127.375	0.000
1			regression	52.998	135		
			Residual	28.085	137		
			Total	81.083			

Source: developed by authors

The data presented in table 10 show that a certain variable does not have a significant statistical contribution to the model (Sig. > 0.05), namely the *Usage Risk*. Out of the data introduced in tables 11 and 12, we can observe a series of collinearity problems: the correlations drop significantly from Zero Order (0.247) to Partial (0.050) and Part (0.029), while, in the table below (Initial Case – without transformations) it is confirmed the diagnostic where the Eigenvalue comes close to 0 for both factors, specifically 0.058 and 0.017. The Condition Index value of the *Usage Risks* factor gets close to the threshold value of 15.

Table 11. Coefficients - initial case (without transformations)

Model	Unstandardized coefficients		Correlations			Collinearity	
MODEL	B	Sig.	Zero-order	Partial	Part	Tolerance	VIF
Constant	0.804	0.000					
Perceived Security	0.791	0.000	0.808	0.794	0.770	0.926	1.079
Usage Risks	0.022	0.563	0.247	0.050	0.029	0.926	1.079

Source: developed by authors

Table 12. Collinearity "Initial Case" - "Final Case"

Initial Case - without transformations			Final Case - Factor Analysis		
Dim.	Eigenvalue	Condition Index	Dim.	Eigenvalue	Condition Index
1	2.925	1.000	1	1.000	1.000
2	0.058	7.119	2	1.000	1.000
3	0.017	13.072	3	1.000	1.000

Source: developed by authors

To solve the collinearity problems, dependent and independent variables were saved as standard forms in the basis (Z-Score). The regression analysis went with the new values, yet, after running the procedure, a new set of collinearity problems was identified. Therefore, we have made the first step to eliminate the collinearity problem by applying the Factor Analysis which included the reuse of Z-Scores for the independent variables. The analysis of the multiple linear regression was redone and, this time, the dependent variable in standard form was used (Z-Score) as well as the scores of the Factor Analysis factor for the independent variables. We can conclude that, in the case of the final model of regression, the same values were recorded for the following: R Squared, F and Sig. similarly to the initial one. The collinearity problems were solved: the differences between the Zero-Order and Part and Partial correlations were reduced, all the VIF values were smaller than 2, equal to 1, and all the Eigenvalue and Condition Index values are 1 ("Final Case – with Factor Analysis").

Table 13. Coefficients -final case (Factor Analysis)

Model	Unstandardized coefficients		Correlations			Collinearity	
Model	B	Sig.	Zero-order	Partial	Part	Tolerance	VIF
Constant	2.94	1.000					
Usage Risks	0.140	0.007	0.140	0.231	0.140	1.000	1.000
Perceived Security	0.796	0.000	0.796	0.804	0.796	1.000	1.000

Source: developed by authors

After making all the changes, according to table 13, we identify that variables *Usage Risks* and *Perceived Security* (Sig < 0.05) have a significant statistical influence on the *Perceived Trust* towards

the Hilton Honors mobile app. Thus, *Perceived Security* has the biggest contribution (unstandardized coeff. B = 0.796), while *Usage Risks* (unstandardized coeff. B = 0.140) has the smallest contribution.

In the following, we have analysed the comparison between the groups such as the use period of the Hilton Honors mobile app, which, in its turn breaks down into 2 types: a medium period of recent use (group 1 = 1) and a long period of use (group 2>1).

Thus, in the table below (table 14), the final results are synthesised for the analysis of both simple and multiple regressions related to group 1 of analyses, which have a medium period of recent use of the Hilton Honors mobile app (for a few months, a maximum of one year).

Worth mentioning is that, in the stage of multiple regressions, we have operated a series of changes to remove the problems related to collinearity, by saving the dependent and independent variables in standard form (Z-Score). After that, we have run again the analysis of regressions and established that not all the collinearity problems were suspended. Accordingly, we have moved to the factor analysis, where we included the Z-Score for the independent variables. The analysis of the multiple linear regression was redone with the dependent variable in standard form (Z-Score) and with the scores of the factor analysis for the independent variables.

Table 14. Regressions - recent period of use (group 1=1)

Set 1	Medium period of use			Dependent variabile	Unstandard B	Sig.
RS1_RF1 Model ANOVA regression	0,187	13,161	0.001	Recommendation of the app	0.511	0.001
RS2_RF1 Model ANOVA regression	0.593	84.584	0.000	Future behaviour	0.730	0.000
RM3_RF1 Model ANOVA regression	0.747	83.971	0.000	Perceived trust	0.831	0.000
				Security. Usage risks	0.236	0.01
RM4_RF1 Model ANOVA regression	0.789	69.893	0.000	Performance of expectances	0.664	0.000
				Benefits of performance. Hedonic motivation	0.414	0.000
				Usage Habit	0.421	0.000
RM5_RF1 Model ANOVA regression	0.880	136.305	0.000	Perceived usefulness.	0.468	0.000
				Atmosphere. Usefulness. Receptivity	0.492	0.000
				Ease-of-use	0.696	0.000

RM6_RF1 Model ANOVA regression	0.711	33.832	0.000	Perceived Usefulness	0.656	0.000
				Trust	0.203	0.000
				Performance of expectations	0.388	0.000
				Social Influence	0.468	0.000

Source: developed by authors

The first run regression was a simple one, for which the dependent variable was the *Recommendation of the App* factor and, as an independent variable, the *Consumer Satisfaction*. The final model of regressions is statistically significant (ANOVA F= 13.161, Sig=0.01), which registered an R Squared of 0.187, equivalent to 18.7%. The *Recommendation of the App* is explained by the independent variable, namely *Consumer Satisfaction*, which has a significant contribution (Unstandardized B = 0.511).

The following analysed regression was also a simple linear one, between the dependent variable as the *Future Behaviour* factor and the independent variable of *Consumer Satisfaction*. The final model of regressions is statistically significant (ANOVA F=84.584, Sig=0.000), which registered an R Squared of 0.593, equivalent to 59.3% out of which variation of the *Future Behaviour* factor is explained by the independent variable, namely *Consumer Satisfaction* (with a contribution of Unstandardized B = 0.730).

Further, we are dealing with the set of multiple linear regressions. In the first analysed set, *Security and Usage Risks* are used as the independent variables, and *Perceived Security* as dependent variable. After performing the analysis of regressions, we have set a collinearity problem, which was suspended through a series of steps, as mentioned earlier. The final model of regressions shows that it is statistically significant (ANOVA F= 83.971, Sig =0.000), which recorded an R Squared of 0.747, equivalent to 74.7%. The variation of the dependent variable, namely *Perceived Trust*, is explained by the independent variables, namely *Security*factor (which registers a high contribution: Unstand B = 0.831), and *Usage Risk* (with a significant contribution: Unstand B = 0.236).

Thus, we have established that the final model of regressions between the dependent variable, specifically *Performance of Expectations*, and the independent variables of *Performance Benefits*, *Hedonic Motivations*, and *Usage Habit* are statically significant (ANOVA F = 69.893, Sig = 0.000), which registered an R Squared of 0.789, equivalent to 78.9%. The variance of the dependent variable is explained by the independent variables. The *Performance Benefits* factor has the biggest contribution (B =0.664), followed by the *Usage Habit* factor with a significant contribution (Unstand

B =0.421), and, finally, the most insignificant contribution belongs to *Hedonic Motivations*factor (Unstand B= 0.414).

The following model of multiple regressions is between the *Perceived Usefulness* dependent variable and *Perceived Atmosphere*, *Fiability and Receptivity*, *Ease of Use* as independent variables that are statistically significant (ANOVA F = 136.605, Sig = 0.000), and which registered an R Squared of 0,880, equivalent to 88%. The variance of the dependent variable is explained by the independent variables. *The Ease of Use* factor records the highest contribution (Unstand B=0.646), followed by *Fiability and Receptivity* factor (Unstand B = 0.492), while the smallest contribution goes to the *Atmoshere* factor (Unstand B=0.468).

The last batch of regressions is connected to the dependent variable, namely *Customer Satisfaction* and the independent variables of *Perceived Usefulness*, *Trust*, *Performance of Expectations*, and, naturally, *Social Influence*, which are statistically significant (ANOVA F = 33.832, Sig=0.000), recording an R Squared of 0.711 which is equivalent to 71.1%. The variance of the dependent variables is explained by the independent variables. The *Perceived Usefulness* registers the biggest contribution (Unstand B=0.656), succeeded by *Social Influence* factor (Unstand B = 0.468), while the smallest contributions are brought by *Performance of Expectations* (Unstand B=0.388) and *Trust* (Unstand B=0.203).

In the end, following the analyses run, we can notice there are significant connections between *Consumer Satisfaction* factor and *Recommendation of the Hilton Honors app* (where B = 0.511), between *Future Behaviour* (where B=0.730), between *Perceived Usefulness* (where B = 0.656), between *Social Influence* (where B = 0.46) and *Performance of Expectations* (where B = 0.388), with a maximum period of one year. Between *Consumer Satisfaction* and *Perceived Trust* there is an insignificant connection in terms of statistics.

Conclusions

As a result of the research performed in the present paper, we have drawn more conclusions. Based on the complex research approach, we can mention that customer satisfaction is one of the key variables determining/ influencing the decision of the tourist company to develop, it is the main pillar of the evaluation performed by the client who appreciates a product/ service according to his/ her expectations.

The main SMART pillar of enhancing organisational performance and customer loyalty is represented by the successful implementation of information technologies in various domains of activity. Accordingly, the implementation of mobile applications in the tourism business is a

successful factor which improves customer satisfaction in terms of delivered services of the hotel unit concerned.

Following the analyses run within this scientific endeavour, we have noticed that there are significant connections between several factors, namely Consumer Satisfaction, Future Behaviour (where B = 0.687), Perceived Usefulness of the App (where B = 0.656), Social Influence (where B = 0.352), Performance of Expectations (where B = 0.327), for more than one-year period of the mobile application. Thus, we can conclude that each hotel unit should rethink its relationship management in terms of implementing and including new information technologies in their activity which will generate satisfied and loyal customers.

As a result of the research performed, we can observe that tourists are satisfied with the mobile applications developed by the hotel system since they make easier the reservation, provide new channels of communications, and offer feedback. At the same time, the implementation of mobile applications contribute to the overall improvement of the management process in the hotel units.

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