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Determinants of Accounting Information Systems Success: The Case of the Greek Hotel Industry

Ioannis E. Diavastis , Konstantinos A. Chrysafis * and Georgia C. Papadopoulou

Department of Tourism Economics and Management, School of Business, University of Aegean, 82100 Chios, Greece; idiavastis@aegean.gr (I.E.D.); gpapadopoulou@aegean.gr (G.C.P.)

* Correspondence: kchrysafis@aegean.gr; Tel.: +30-2271035356

Abstract: Accounting information systems (AIS) are primarily designed to convert financial data into usable financial and management information. Their effectiveness or success, which shows the extent to which the requirements of their users are satisfied, is an essential factor in decision making. Previous research has found that user satisfaction is a particularly widely utilized and indicative measure of information system (IS) success. In this setting, the success or failure of an AIS is a crucial issue for all companies since a particular IS cannot be appropriate for everyone, especially in the case of accounting software that has to satisfy the requirements of its users. Furthermore, given the hotel industry's information-intensive and competitive character, the AIS user satisfaction of hotel financial and accounting executives can be vital to their performance and the hotel's operational efficiency. The aim of this research is to investigate a number of factors that influence AIS user satisfaction in the post-implementation period in the case of the Greek hotel industry. The findings of our empirical study show that system quality, information quality, system use, service quality, firm's size, years of system use, information technology integration, and organic structure have a positive effect on user satisfaction with AIS. On the contrary, statistical analysis shows that users' level of education is negatively correlated with AIS user satisfaction. Finally, the current research findings contribute theoretically to the IS and accounting literature, and they also shine a light on the managerial implications for IS developers, hotel managers, and financial executives.

Keywords: accounting information systems; IS success; financial data; user satisfaction; hotel industry; operations' efficiency



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1. Introduction

The hotel industry is characterized as a highly information-intensive sector (Law and Jogaratnam 2005; Huh et al. 2009) due to the need for real-time and precise information for managers and customers. At the same time, hotels operate in an environment characterized by globalization, competition, complexity, customer expectations, and a high degree of variability. Aiming at making rational decisions under such conditions, hotel managers need relevant, accurate, up-to-date, and comprehensive information. Consequently, they turn in significant investments in information technology (IT) systems (Melián-González and Bulchand-Gidumal 2016) to achieve the desired competitive advantage.

More specifically, IT provides an opportunity to hotels to improve their services and performance (Cheung and Law 2002), while enabling managers to achieve increased profit margins and financial returns (Law and Jogaratnam 2005). As Ezzaouia and Bulchand-Gidumal (2023) suggested, IT adoption leads to better employee and financial performance. However, it does not always improve their operational efficiency, according to the findings of empirical studies (Buhalis 1998; Sigala 2003; Karadag and Dumanoglu 2009), and this results in the so-called "IT productivity paradox" (Brynjolfsson 1993). Therefore, information systems' (IS) effectiveness is increasingly becoming a significant issue for the operational success of hotels (Wang and Qualls 2007).

Due to the rapid evolution of IT, the growth and development of enterprise systems (ES) has emerged in recent decades. Accounting information systems (AIS) can be defined as “computer-based systems that process financial information and support decision tasks in the context of coordination and control of organizational activities” (Nicolau 2000, p. 91). Stefanou (2006, p. 9) suggested that the aim of AIS “is the collection and recording of data and information regarding events that have an economic impact upon organizations and the maintenance, processing and communication of information to internal and external stakeholders”. However, a successful AIS implementation is critical for the end-user; thus, consecutive assessments of the system’s outputs by the end-user are required (O’Donovan 1996). Additionally, an effective AIS can lead to higher user satisfaction, which, successively, has a positive impact on a business’s overall operations (Lutfi et al. 2020). Therefore, the effectiveness—or otherwise the success—of AIS is an essential issue that must be addressed by IT managers and developers (Diavastis et al. 2016).

The dominant objective of this research is to explore the factors influencing the success of AIS in the post-implementation period. The selection of factors to be investigated is based on DeLone and McLean’s (1992, 2003) models, IS characteristics, contingency theory, and the users’ attributes. Due to the multidimensional nature of IS success (Bokhari 2005) and the inadequacy of financial indicators, surrogate measures were applied in IS research. Based on a thorough review of the IS literature, user satisfaction will be used as a proxy measure of AIS success, while the factors to be considered in relation to AIS user satisfaction are information quality, service quality, system quality, system usage, user’s age, user’s education, company’s size, organizational structure, years of system use, and information technology integration.

Although a significant number of studies have examined the success of various ES, only a few of them have addressed this matter in the case of AIS (Karagiorgos and Diavastis 2013). Furthermore, Díez and McIntosh (2009) pointed out that a limited number of studies have evaluated the factors influencing user satisfaction regarding the period from system implementation onwards; therefore, they suggested that future studies should focus on their investigation. In the same vein, Monteiro and Cepêda (2021) outlined the need for future studies to explore the factors that contribute to the effectiveness of AIS. Finally, this study is a response to White and Cronan’s (1997) call for further investigation of the factors underpinning user satisfaction in accounting applications, Longinidis and Gotzamani’s (2009) proposal for further evaluation of IS success in Greek companies, and Park and Jang’s (2014) proposition that the effectiveness of various IT applications in the hotel industry should be evaluated. Consequently, the current study contributes to the IS and hospitality literature by revealing the predictors of AIS success and is highly relevant considering technological evolution.

The structure of the paper is as follows: In Section 2, we conduct a review of IS effectiveness and the Information Systems Success Model (ISSM), highlighting the importance of AIS user satisfaction as an indicator of AIS success in the hotel industry and presenting the results of previous studies, outlining the gaps in the existing literature. In Section 3, the development of hypotheses is conducted. Subsequently, in Section 4, the methodology of the study is comprehensively presented. Section 5 provides the obtained results. Finally, in Section 6, we conclude the study by presenting a discussion of the findings; Section 7 highlights the implications of the study; while the limitations of our research and suggestions for future studies are outlined in Section 8.

2. Literature Review

As mentioned before, the use of IS does not always enhance the efficiency of hotels. Due to the need for accurate, relevant, and timely information, hotel executives must effectively exploit IS in order to achieve corporate goals. Evaluating the effectiveness of the IS is an important process for hotel companies as the productivity of the system may be low, and this, consequently, may lead to system failure and a waste of hotel resources (Jang et al. 2006). Meanwhile, AIS enables hotel financial and accounting executives to perform financial accounting processes in a more effective and efficient manner by leveraging stable and accurate information. However, due to the increasing competition, dynamic

environment, complexity, and increase in business transactions, as well as significant changes in legislation and service customization, hotels have the need to implement efficient and effective AIS (Mitrovic and Knežević 2018). Therefore, successful and effective AIS implementation is crucial for managerial and financial performance in the hotel industry.

2.1. IS Success

Although most of the researchers on this topic conclude that IT use can contribute to competitive advantage and that IS investments usually increase business performance (Mihalič and Buhalis 2013), empirical research in the hotel industry shows mixed results (David et al. 1996). Consequently, the so-called “IT productivity paradox”, whereby firm productivity or performance can be adversely affected by an investment in IT systems (Brynjolfsson 1993), often occurs in the service sector (Roach 1991). For this reason, IS effectiveness is an important consideration for the hotel managers.

Various definitions and approaches to determining success and effectiveness have been presented in the IS literature. At the same time, the difficulty of measuring the effectiveness of an IS, and particularly an ES, has been highlighted by many researchers (Sedera and Tan 2005; Chien and Tsaur 2007). As financial indicators are not considered adequate and can hardly assess the success of IS, the need to use proxy measures has been raised (Wu and Wang 2006). As a result, researchers have attempted to develop various models to approach IS success and effectiveness.

The information systems success model (ISSM), also known as the IS success model, proposed by DeLone and McLean (1992), is one of the most valuable tools for IS researchers. As suggested by DeLone and McLean (2003), this model consists of three components: system creation, system use, and system use outcomes. Through their model, the researchers classified information systems success into six categories: information quality, system quality, usage, individual and organizational impact, and user satisfaction. However, in 2003, DeLone and McLean published an updated IS success model, considering the various criticisms of IS researchers and empirical studies based on the original model, changes in the role and management of IS, and the growth of e-commerce. The main changes that occurred compared to the original model were (a) the addition of service quality to reflect service importance; (b) the addition of intention to use as a measure of user attitude; and (c) the combination of individual and organizational impact in a dimension under the term net benefits. Finally, DeLone and McLean (2016) pointed out that the model has been cited and applied by approximately 8000 articles, thus demonstrating its widespread acceptance by the IS community.

2.2. AIS User Satisfaction as a Surrogate of AIS Success

As mentioned by Nicolaou (2000), IS research defines the effectiveness of a system as either “user satisfaction with information” or “as the extent to which users believe the information system available to them meets their information requirements” (Ives et al. 1983, p. 785). At the same time, Kaya and Azaltun (2012) pointed out that the human element is a critical factor in the success of an IS in the hotel industry. In addition, the studies by Lo and Darma (2000) and Jang et al. (2006) highlight the importance of IS user satisfaction in the hotel industry.

Since user perceptions are an important element in the IS literature (Chien and Tsaur 2007), user satisfaction can be considered a good proxy of IS success (Iivari and Ervasti 1994; Seddon and Kiew 1996). Despite reservations and criticisms about its suitability as a surrogate (Tait and Vessey 1988; Melone 1990), several researchers have concluded that user satisfaction is the most widely used and representative measure of success or IS effectiveness (Baroudi and Orlikowski 1988; Remenyi and Money 1991; DeLone and McLean 1992; Kettinger and Lee 1994; Sedera and Tan 2005; Longinidis and Gotzamani 2009). According to DeLone and McLean (1992), user satisfaction has been shown to have a high degree of face validity as a measure of success, and it is a particularly appropriate measure when evaluating a particular IS. Subsequently, Gatian (1994) confirmed the reliability and construct validity of user satisfaction as a substitute of IS effectiveness. At the same time,

according to [Sedera and Tan \(2005\)](#), user satisfaction is a key measure of IS effectiveness and not just a dimension of DeLone and McLean’s ISSM.

[Barth \(1991\)](#) suggested that one kind of software cannot be convenient for everyone, let alone accounting software that must meet the user’s needs. Furthermore, even though AIS must rely on their technical features to function properly, it is important to consider the human factor ([Georgantopoulos et al. 2018](#)). Based on [Bokhari \(2005\)](#), IS success is determined by the extent to which IS satisfy certain criteria, such as meeting user needs and achieving business objectives. Thus, AIS must be continuously upgraded and adapted to the needs of their users in order to achieve their maximum satisfaction, aiming at better decision making and improving business performance. In empirical research, [Karagiorgos and Diavastis \(2013\)](#) demonstrated that AIS user satisfaction leads to better managerial and financial performance in Greek small- and medium-sized hotels. User satisfaction is therefore considered an appropriate indicator in determining AIS success.

2.3. The Determinants of AIS User Satisfaction

While the topic of the relationship between AIS and organizational performance has been addressed in the literature ([Al-Hashimy et al. 2022](#); [Karagiorgos and Diavastis 2013](#); [Al-Okaily et al. 2020](#)), and the investigation of the factors influencing adoption and implementation of AIS has been carried out ([Fitrios 2016](#); [Wongsim 2016](#); [Tilahun 2019](#)), to our knowledge, a limited number of studies have investigated the success and effectiveness factors of AIS in the post-implementation period, despite the systems’ significant contribution to control, decision-making, and performance. Furthermore, few of them focused on examining specific determinants of AIS success, while most studies carried out DeLone and McLean’s ISSM assessment, identifying the factors influencing AIS user satisfaction.

Table 1 presents the results of the preceding empirical studies. Most of the studies adopted the dimensions of DeLone and McLean’s model to examine the existence of relationships ([Seddon and Kiew 1996](#); [Iivari 2005](#); [Arifiyanti et al. 2020](#); [Muda et al. 2020](#); [Tajul Urus et al. 2020](#); [Al-Hattami 2021](#); [Ernawatiningsih and Arizona 2021](#); [Hamdan and Al-Hajri 2021](#); [Apsari et al. 2023](#); [Lutfi 2023](#)). Based on the results of these studies, the ISSM correlations are not fully supported, with the only significant factor of AIS user satisfaction being system usage. In addition, some studies assessed specific individual and organizational characteristics and are therefore unable to generalize their results. Finally, there are no studies that combine DeLone and McLean’s ISSM, IS characteristics, contingency theory, and user attributes when considering AIS success factors.

Table 1. Factors of AIS user satisfaction and their relationship.

Factors		Studies												
		A	B	C	D	E	F	G	H	I	J	K	L	M
User Attributes	Accounting Knowledge				+									
	Computer Knowledge				+									
	Job Experience		+											
	User Confirmation					+								
Dimensions of System	Information Quality	+		+			0	0		+		+		0
	Perceived Usefulness	+				+		0			0		+	
	Service Quality						0		+	0	+	0		+
	System Importance	0												
	System Quality	+		+			0	+	+	0	+	+	+	+
	System Usage		+	+			+							+
Organizational Management	Existence of External Auditors		–											
	Manager’s Involvement				0									
	Top Management Support										0			

(+) positive relationship; (–) negative relationship; (0) no relationship exists. A: [Seddon and Kiew \(1996\)](#); B: [White and Cronan \(1997\)](#); C: [Iivari \(2005\)](#); D: [Kouser et al. \(2011\)](#); E: [Fong and Ho \(2014\)](#); F: [Arifiyanti et al. \(2020\)](#); G: [Muda et al. \(2020\)](#); H: [Tajul Urus et al. \(2020\)](#); I: [Al-Hattami \(2021\)](#); J: [Ernawatiningsih and Arizona \(2021\)](#); K: [Hamdan and Al-Hajri \(2021\)](#); L: [Apsari et al. \(2023\)](#); M: [Lutfi \(2023\)](#).

3. Development of Hypotheses

As previously mentioned, the aim of this study is to explore the factors affecting AIS user satisfaction in the post-implementation period in the Greek hotel industry, filling the gap in the literature. According to DeLone and McLean (1992, p. 88), “the selection of success measures should also consider the contingency variables. . . and individual characteristics of the system under investigation”. Furthermore, Guimaraes and Igarria (1997) argued that user characteristics play an important role in IS success, while Samarghandi et al. (2023) outlined the importance of human factor in AIS. Finally, Monteiro and Cepêda (2021) emphasized that the internal and external environment of the company is related to the use of AIS, so it is important to be considered. Therefore, based on all the above, and after a thorough review of the IS literature, the factors to be investigated are information quality, service quality, system quality, user’s age, system usage, user’s education, company’s size, organizational structure, years of system use, and information technology integration.

3.1. System Quality

System quality, as one of the preferred characteristics of an IS (DeLone and McLean 1992, 2003), is the objective that confirms that the IS achieves the standards set by the company (Melchor and Julián 2008). Based on DeLone and McLean’s (2003) ISSM, a high-quality system leads to higher user satisfaction. When users interact with a stable system characterized by accessibility and reliability, they tend to use it to a greater extent and show higher levels of satisfaction (Hsu et al. 2015). Thus, the following hypothesis is proposed:

H₁: *System quality has a positive impact on AIS user satisfaction.*

3.2. Information Quality

As users engage in an information-rich environment, while companies operate in a competitive environment such as the hotel industry, the quality of information allows businesses to survive and gain a much-sought competitive advantage (Melchor and Julián 2008). Information quality refers to the desired features of the output of an IS (DeLone and McLean 1992, 2003). Based on DeLone and McLean’s (2003) ISSM, a system that provides high-quality information leads to higher user satisfaction. Therefore, when users perceive information as accurate, up-to-date, consistent, relevant, comprehensive, and understandable, higher levels of satisfaction can be achieved (Hsu et al. 2015). Thus, the following hypothesis is proposed:

H₂: *Information quality has a positive impact on AIS user satisfaction.*

3.3. Service Quality

The relationship between service quality and user satisfaction is based on the expectation–value framework, according to which users are satisfied when they are provided with the services they want, desire, and wish (Kim et al. 2005). Therefore, when users engage with IS support that provides great-quality services through polite interaction (safety), takes into account and understands their needs (empathy), and solves the problems they face in a prompt manner (responsiveness), they are more satisfied (Hsu et al. 2015). Based on the above claims and DeLone and McLean’s (2003) ISSM, a system with high service quality leads to higher user satisfaction. Thus, the following hypothesis is proposed:

H₃: *Service quality has a positive impact on AIS user satisfaction.*

3.4. System Usage

System utilization is defined as “either the amount of effort expended interacting with an information system or, less frequently, as the number of reports or other information products generated by the information system per unit time” (Trice and Treacy 1988, p. 33). This dimension of DeLone and McLean’s model represents the extent to which the system is used by its users (Urbach and Müller 2012). Based on DeLone and McLean’s (2003) ISSM, a system that is used to a greater extent leads to greater user satisfaction. In addition, Igarria

and Nachman (1990) suggested that when the user uses the system for more functions, he feels more confident and familiar with it, exploring new methods of use, and this improves user satisfaction. Therefore, the level of system usage can affect the level of user satisfaction (DeLone and McLean 1992). Thus, the following hypothesis is proposed:

H₄: *System use has a positive impact on AIS user satisfaction.*

3.5. User's Age

Wierenga and Ophuis (1997) reported that older users are not familiar with computers. Subsequently, younger users are more familiar with the use of IT during their studies (Palvia and Palvia 1999) and can thus be more easily satisfied with IS developments (Holsapple et al. 2005). In contrast, Lo and Darma (2000) argued that older people value technology to a greater extent as they likely started their careers in a less automated but more complex work environment. Thus, the following hypothesis is proposed:

H₅: *User's age has a negative impact on AIS user satisfaction.*

3.6. User's Education

The level of education of users contributes to the differentiation of training needs and motivation methods with respect to IS implementation (Holsapple et al. 2005). Users with higher education tend to use computers to a greater extent and show higher satisfaction (Palvia and Palvia 1999) as they can better understand IS and take advantage of its capabilities, causing greater use and satisfaction (Wierenga and Ophuis 1997). However, the results of empirical studies are inconclusive. Thus, the following hypothesis is proposed:

H₆: *User's education has a positive impact on AIS user satisfaction.*

3.7. Firm's Size

The effect of firm size on the IT outcomes has been an important area of research. Mabert et al. (2003) suggested that the IS benefits are not identical between two companies of different sizes. Small hotels usually lack financial resources (Fotiadis et al. 2013) and therefore cannot invest enough funds to implement IS. As a consequence, significant obstacles arise in the selection and implementation of effective IS; therefore, users' information requirements are not met (Thong 2001). In addition, small businesses are more exposed to potential IS failures as they lack sufficient managerial and technical staff expertise in IS development, operation, and use. Instead, the successful use of IS is enabled by the human, technological, and financial resources which are available in large firms (Raymond 1990) as they are able to hire systems analysts and determine a thorough analysis of their information requirements (Montazemi 1988). Thus, the following hypothesis is proposed:

H₇: *Firm's size has a positive impact on AIS user satisfaction.*

3.8. Organizational Structure

The types of organizational structure are divided into mechanistic and organic structures (Reigle 2001). Firms that are less centralized, and therefore organic, tend to employ more specialized analysts, perform a comprehensive analysis of information-level requirements, encourage user involvement, and use specialized software to a greater extent (Montazemi 1988). However, a major problem they face is the existence of communication between the systems of each department. Due to the nature of decentralized (organic) enterprises and the increasing complexity of control, the development of a new IS does not provide the required assistance for their management (Ein-Dor and Segev 1982). On the contrary, according to the results of the study by Brown and Bostrom's (1994), greater efficiency is achieved for the end-user in larger centralized (mechanistic) structures. At the same time, IS users perceive increased utility when the firm has a centralized (mechanistic) structure (Ifinedo 2007). Thus, the following hypothesis is proposed:

H₈: *A centralized (mechanistic) structure has a positive impact on AIS user satisfaction.*

3.9. Years of System Use

According to Brynjolfsson (1993), there is a time lag before the profits of an IT investment are realized. At the individual level, effects must be considered with a time lag as companies go through various stages after IS implementation (Jurison 1996). Thus, IS users need time to adapt to new technologies, overcome any potential problems, become familiar with new ways of performing their tasks, and use them effectively (Premkumar et al. 1994; Bilgihan et al. 2011). At the same time, according to Hou's review (2012), users in companies who have applied a system for more years than others will be more pleased with those systems. Thus, the following hypothesis is proposed:

H₉: *Years of system use has a positive impact on AIS user satisfaction.*

3.10. IT Integration

IS integration refers to "the extent to which a firm integrates its IT systems to provide visibility to customer and supplier data and to allow online information sharing and transaction execution across the value chain" (Barua et al. 2004, p. 589). At the same time, IT integration is a significant issue for the hotel industry because business is mainly based on data (Bilgihan et al. 2011). Chapman and Kihn (2009) suggested that one of the benefits of integration is that it does not require multiple updates of the same information in different independent systems. According to Tatari and Skibniewski (2011), as the IT integration increases, user satisfaction improves. This finding is based on the assumption that integration improves the daily activities of AIS users', reduces time and effort spent on double entries, and allows them to develop their skills. Thus, the following hypothesis is proposed:

H₁₀: *IT integration has a positive impact on AIS user satisfaction.*

4. Research Methodology

4.1. Sample and Data Collection

With the aim of developing the sampling frame of our study, the assistance of the Hellenic Chamber of Hotels was requested to determine our sampling frame. After the data completeness check, the sampling frame of this research consists of a total of 2508 hotels. Greek hotels belonging to the three- (3***), four- (4****), and five-star (5*****) category are defined as the target population. The reason that drove this choice is that these types of hotels are of sufficient size to implement and use AIS, either as stand-alone systems or integrated as enterprise resource planning (ERP) financial subsystems in the core of their IT systems, customized for the needs of the hotel industry. The targets of our research are hotel finance and accounting executives, who are the main users of AIS.

A structured questionnaire was used to gather the data for our research. Following the suggestions of Saunders et al. (2012) and Cooper and Schindler (2003) for pilot testing, the questionnaire was initially tested by PhD candidates for wording and time required. It was then reviewed by three academics and two industry professionals, who contributed to the content validity of the questionnaire with valuable comments and observations on the content and wording of the questions. Finally, after making the recommended adjustments, the questionnaire was sent to three hotel financial executives and accountants who are employed in hotels of different star categories (3***, 4****, and 5*****) with a view to checking the instructions for the completion of the questionnaire, the measurement scales, the correctness and clarity of their wording, and the investigation of possible problems related to the coding and analysis of the responses. Considering all the points raised, some modifications were made to the questionnaire.

The final questionnaire, concerning finance and accounting executives, was mailed to a total of 1000 hotels using the Survey MonkeyTM online platform. Moreover, the technique of simple random sampling was applied to achieve the least bias (Sekaran 2003). The number of e-mails returned or rejected was 51, while 42 hotels requested to be excluded from the survey. For the remaining hotels in the sample, reminders were sent to those that

had not completed the questionnaire. Thus, the total number of completed questionnaires was 195. At the same time, 54 questionnaires with missing data in more than 20% of the questions were rejected following the practice of Gerdin (2005), while the hot deck method was applied to assign values to the incomplete data. This method is a common practice (Brown and Kros 2003) and is a fairly accurate technique as missing data are replaced by true values to preserve the distributions of the variables (Fox-Wasylyshyn and El-Masri 2005). Consequently, the usable survey sample reached 141 observations, and the usable response rate is 14.9%.

Finally, as a low response rate can result in non-response bias (Dunk 2001) and can therefore have a negative impact on the external validity and generalizability of survey results (Mellahi and Harris 2016), statistical tests (chi-square tests, independent samples *t*-tests) were conducted, comparing the responses of late respondents to early respondents (Armstrong and Overton 1977). Given the results of the above tests, the absence of a non-response bias is supported in the present study.

4.2. Descriptive Statistics of Sample

The descriptive statistics of respondents are presented in Table 2. A total of 62.4% of the survey participants responded that they work either as accountants or assistant accountants. In terms of work experience, 51.7% of the research participants reported that they have more than 11 years of experience, while 85.2% stated that they are graduates of higher education. The above data increase the validity of the research results as the respondents are employed in appropriate and relevant job positions, have sufficient work experience, and are properly educated and capable of answering the posed questions. Furthermore, 83.3% of the respondents are over 35 years old, while 63.1% are men.

Table 2. Demographic profiles of respondents.

		Frequency (N)	Percentage (%)
Job Position	Financial Managers	11	7.8
	Internal and Financial Auditors	7	5.0
	Cost Accountants	5	3.5
	Accountants and Assistant Accountants	88	62.4
	Other	30	21.3
Job Experience	1–10 years	68	48.2
	11–20 years	58	41.1
	Over 20 years	15	10.6
Education	High School	3	2.1
	Institute of Vocational Training	18	12.8
	Bachelor	97	68.9
	Postgraduate	23	16.3
	PhD	0	0
Gender	Men	89	63.1
	Women	52	36.9
Age	Under 35 years	25	17.7
	35–44 years	65	46.1
	45–54 years	34	24.1
	Over 55 years	17	12.1

The descriptive statistics of sampled hotels are presented in Table 3. A total of 20.6% of the hotels are classified as large hotels, while 56% are classified as medium-sized hotels, following the size classification of Camisón (2000) and Claver-Cortés et al. (2007). Regarding the distinction of hotels based on stars, 32.6% belong to the 5-star category and 48.9% belong to the 4-star category, while 21.3% of the sampled hotels belong to either domestic or international hotel chains.

Table 3. Demographic characteristics of hotels.

		Frequency (N)	Percentage (%)
Number of Beds	1–100 beds	6	4.3
	101–150 beds	27	19.1
	151–300 beds	79	56.0
	Over 300 beds	29	20.6
Star Category	5	46	32.6
	4	69	48.9
	3	26	18.4
Management Status	Private firm	111	78.7
	Member of domestic chain	19	13.5
	Member of international chain	11	7.8

4.3. Measures

In the current research, most survey instrument questions were adopted from preceding studies, while some of the questions were modified in order to specifically fit the AIS and the hotel industry. The measurement of construct variables is presented in Table 4.

Table 4. Measurement of construct variables.

Variable	Definition	References	Items	Scale
AIS_US	User Satisfaction of AIS	Seddon and Kiew (1996); Almutairi and Subramanian (2005)	4	5-point Likert scale
AIS_IQ	Information Quality of AIS	Urbach et al. (2010); Iivari (2005); Gu and Jung (2013); Gable et al. (2008); Sun et al. (2014)	6	5-point Likert scale
AIS_SQ	System Quality of AIS	Urbach et al. (2010); Iivari (2005); Gu and Jung (2013); Gable et al. (2008); Sun et al. (2014)	7	5-point Likert scale
AIS_SER	Service Quality of AIS	Urbach et al. (2010)	4	5-point Likert scale
ITI	Information Technology Integration	Maiga (2015)	2	5-point Likert scale
STRU	Organizational Structure	Tavitiyaman et al. (2012)	3	5-point Likert scale

The structure and values of the variables AIS_US, AIS_IQ, AIS_SQ, AIS_SER, STRU, and ITI will be derived from the factor analysis. Regarding the variable SIZE, it is defined by the number of beds (Camisón 2000; Claver-Cortés et al. 2007) and takes values as follows: 1 (1–50 beds); 2 (51–100 beds); 3 (101–150 beds); 4 (151–200 beds); 5 (201–250 beds); 6 (251–300 beds); 7 (more than 300 beds). The variable AIS_USE takes values from 1 (0%) to 11 (100%) (Sun et al. 2014). Furthermore, the variables AGE and AIS_AGE are measured as continuous variables. Finally, the variable EDU is categorical, but it will be treated as a dichotomous variable, taking a value of 0 if the hotel's executive does not have a higher education degree (high school graduate or institute of vocational training graduate) and of 1 if the hotel's executive has a higher education degree (bachelor graduate or M.Sc. or Ph.D. holder).

4.4. Data Analysis Techniques

Multiple regression analysis, in which the factors, as independent variables, are directly related to AIS_US, is purposely adopted in this research since this relationship has not been examined in a business environment (i.e., Palvia and Palvia 1999) such as the hotel industry. Moreover, this technique is a common practice in IS research and has been applied by many studies (e.g., Carey 1997; Almutairi and Subramanian 2005; Jang et al. 2006; Floropoulos et al. 2010; Lai and Pires 2010; Sun et al. 2014). Thus, the following model is employed:

$$\text{AIS_US} = b_0 + b_1\text{AIS_SQ} + b_2\text{AIS_IQ} + b_3\text{AIS_SER} + b_4\text{AIS_USE} + b_5\text{AGE} + b_6\text{EDU} + b_7\text{SIZE} + b_8\text{STRU} + b_9\text{AIS_AGE} + b_{10}\text{ITI} + \varepsilon.$$

5. Analysis and Results

5.1. Validity and Reliability Analysis

An extensive literature review, a questionnaire review conducted by academic faculty and industry professionals, and pilot testing ensure the content validity of our research instrument. The well-defined sampling frame, the use of random sampling, and the absence of non-response bias are factors that enhance the external validity of the research. Moreover, even though the operationalization of the concepts was mainly achieved using multiple items, factor analysis using principal components analysis (varimax rotation) was applied for the multi-item constructs to ensure the construct validity of our instrument. Finally, regarding reliability, the internal consistency of each multi-item construct variable was tested using Cronbach's alpha.

The Kaiser–Mayer–Olkin (KMO) test and Bartlett's test of sphericity were used to ensure suitability for conducting factor analysis. The values of KMO were higher than 0.50 (Hair et al. 2014), and the results of Bartlett's test of sphericity were significant for all constructs. At a significance level of 5% and a sample size of up to 120 observations, loadings with values above 0.50 are considered significant. Furthermore, as the optimal structure is achieved when all variables have high loadings on one factor, and as the control of uni-dimensionality of the scale is an important criterion for the use of summative scales (Hair et al. 2014), research has adopted the practice of deleting variables when cross-loadings are exhibited or when the difference between two loadings is less than 0.20 (Makkar and Singh 2021). Based on the results of the factor analysis, factor loadings exceeded the threshold of 0.50, no high cross-loadings were identified, and all factors exhibited eigenvalues greater than 1.

Cronbach's alpha is a commonly used measure of internal consistency between variables in the social sciences (Bonett and Wright 2015). According to Hair et al. (2014), the lowest acceptable threshold is set at 0.70. In our research, the Cronbach's alpha coefficients for the construct variables ranged from 0.844 to 0.944. Factor analysis results and reliability analysis for all measurement scales confirm that the items represent and measure the theoretical concepts in a consistent and accurate manner. Therefore, the uni-dimensionality, the discriminant validity, and the internal consistency of the scales are confirmed based on the above statistical assumptions and results.

5.2. Correlations

Table 5 reports the Pearson correlation matrix and the main descriptive statistics of the variables. Based on the results, some important conclusions can be drawn. All independent variables, except for AGE, EDU, and SIZE, have a statistically significant relationship with the dependent variable AIS_US. The positive and statistically significant correlations found between the AIS success dimensions (AIS_US, AIS_IQ, AIS_SQ, and AIS_SER) confirm most of the previous empirical research on the relationships between these variables (Floropoulos et al. 2010). Correspondingly, the correlations range from 0.273 to 0.567, and they are significant at the 1% level of significance.

According to the descriptive statistics of the variables, the mean value of AIS_US is 3.62. This result is slightly lower compared to the related study of Diavastis et al. (2016) in Greek hotels, while it also indicates that users of AIS are satisfied with the systems to a significant extent, but they have higher requirements. Finally, the mean values of AIS_IQ, AIS_SQ, and AIS_SER are above the value of 3, indicating that there is significant room for improvement in AIS success dimensions.

Table 5. Correlations, means, and standard deviations for the variables.

	AIS_US	AIS_SQ	AIS_IQ	AIS_SER	AIS_USE	AGE	EDU	SIZE	STRU	AIS_AGE	ITI
AIS_US	1										
AIS_SQ	0.411 **	1									
AIS_IQ	0.459 **	0.514 **	1								
AIS_SER	0.464 **	0.273 **	0.423 **	1							
AIS_USE	0.567 **	0.280 **	0.427 **	0.362 **	1						
AGE	−0.002	−0.080	−0.008	0.031	−0.016	1					
EDU	−0.099	−0.026	0.037	0.095	−0.104	−0.350 **	1				
SIZE	0.162	−0.043	−0.008	0.018	0.065	−0.136	0.290 **	1			
STRU	0.453 **	0.107	0.165	0.141	0.297 **	0.111	−0.025	0.002	1		
AIS_AGE	0.167 *	0.080	0.000	0.100	0.003	−0.097	0.040	0.075	−0.043	1	
ITI	0.350 **	0.176 *	0.037	0.298 **	0.190 *	−0.028	0.152	0.238 **	0.240 **	−0.059	1
Mean	3.62	3.21	3.35	3.26	5.28	42.07	0.85	4.82	3.20	7.44	2.45
Std. Dev.	0.87	0.87	0.83	0.81	1.77	8.37	0.36	1.54	0.86	3.61	0.97

*, ** indicate significance at 5% and 1% levels, respectively.

5.3. Regression Analysis

Before applying the multiple regression analysis, it is important to test its assumptions. Aiming at verifying the assumptions of linearity and homoscedasticity, scatter plots of the residuals against the estimated values were examined, with no violation of these assumptions observed. Regarding normality, data were assessed using the asymmetry and kurtosis coefficients. Given their results, it can be concluded that the normality assumption is not violated. Concerning the assumption of the absence of autocorrelation, the Durbin–Watson (D-W) statistic was conducted. Based on the results obtained from the regression analysis, it can be concluded that the assumption of independence of observations is also not violated, as the D-W test statistic value is 2.045. Finally, the variance inflation factor (VIF) and tolerance (TOL) were used to evaluate the multicollinearity among the independent variables. Based on the results, the TOL values range from 0.565 to 0.948 while the VIF values range from 1.054 to 1.770. Consequently, there is no multicollinearity problem for our model. In conclusion, the assumptions of using multiple regression analysis are satisfied.

Based on the results of multiple regression analysis (Table 6), the regression model is significant ($F = 19.793; p = 0.000$). At the same time, the independent variables explained 57.3% (adjusted $R^2 = 0.573$) of the variance in AIS user satisfaction. This result is higher than in previous studies (Jang et al. 2006). Finally, the results of the multiple regression analysis indicate that all the independent variables have a statistically significant effect on AIS user satisfaction, except for AGE.

Table 6. Regression results for AIS user satisfaction.

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity	
	B	Std. Error	Beta			Tolerance	VIF
Constant term	−0.043	0.457		−0.094	0.926		
AIS_SQ	0.140	0.067	0.140	2.093	0.038	0.683	1.465
AIS_IQ	0.164	0.077	0.155	2.112	0.037	0.565	1.770
AIS_SER	0.198	0.071	0.185	2.775	0.006	0.689	1.452
AIS_USE	0.126	0.033	0.255	3.829	0.000	0.689	1.450
AGE	−0.005	0.006	−0.044	−0.734	0.464	0.834	1.200
EDU	−0.419	0.154	−0.172	−2.711	0.008	0.761	1.314
SIZE	0.083	0.034	0.146	2.436	0.016	0.847	1.180
STRU	0.285	0.060	0.282	4.720	0.000	0.855	1.170
AIS_AGE	0.036	0.014	0.149	2.622	0.010	0.948	1.054
ITI	0.133	0.057	0.147	2.311	0.022	0.751	1.331

$R = 0.777; R^2 = 0.604; \text{Adj } R^2 = 0.573; F = 19.793; \text{Sig.} = 0.000; \text{D-W} = 2.045.$

Specifically, AIS_SQ, AIS_IQ, AIS_SER, and AIS_USE have a positive impact on AIS_US ($b_1 = 0.140, p = 0.038; b_2 = 0.164, p = 0.037; b_3 = 0.198; p = 0.006; b_4 = 0.126; p = 0.000$, respectively). Thus, H_1, H_2, H_3 , and H_4 are strongly supported. These results are consistent with the literature and the findings of related studies on AIS (Thong et al. 1994; Seddon and Kiew 1996; Iivari 2005; Petter and Fruhling 2011). Moreover, AGE has a negative but not statistically significant impact on AIS_US ($b_5 = -0.005; p = 0.464$). Therefore, H_5 is rejected. A similar result was found in previous studies (Carey 1997; Wierenga and Ophuis 1997; Zviran et al. 2005; Mitakos et al. 2010; Longinidis and Gotzamani 2009; Holsapple et al. 2005; Sun et al. 2014). Moreover, EDU has a negative ($b_6 = -0.419$) and statistically significant ($p = 0.008 < 0.01$) impact on AIS_US. Consequently, H_6 is rejected.

Concerning the factor of firm's size, it is found to have a positive ($b_7 = 0.083$) and statistically significant ($p = 0.016 < 0.05$) impact on AIS_US. Consequently, H_7 is accepted. This result confirms the results of previous empirical studies (Raymond 1990; Choe 1996; Diavastis et al. 2016). Furthermore, the coefficient of organizational structure (STRU) is positive ($b_8 = 0.285$) and statistically significant ($p = 0.000 < 0.01$). Hence, H_8 is rejected. Also, AIS_AGE has a positive ($b_9 = 0.036$) and statistically significant ($p = 0.010 < 0.05$) impact on AIS_US. Therefore, H_9 is accepted. This result agrees with the literature and the results of previous studies (Hou 2012; Karagiorgos and Diavastis 2013). Finally, the coefficient of information technology integration (ITI) is positive ($b_{10} = 0.133$) and statistically significant ($p = 0.022 < 0.05$). Consequently, H_{10} is accepted. This result confirms the relevant literature and is consistent with the results of previous studies (Hussein et al. 2007; Tatari and Skibniewski 2011).

6. Discussion

DeLone and McLean's (2003) ISSM has been accepted by researchers as the primary criterion for evaluating IS effectiveness, while user satisfaction has been commonly used as a surrogate of its success. However, little research has focused on exploring the factors that affect AIS user satisfaction in the period after the system installation, and studies on IS success in the hotel industry are limited. Hence, this research fills the gap in the literature by examining the predictors of AIS user satisfaction in the post-implementation period in the Greek hotel industry based on DeLone and McLean's ISSM, the characteristics of IS, contingency theory, and the users' attributes.

According to the results of multiple regression analysis, information quality, system quality, system usage, service quality, company's size, years of system operation, and information technology integration are the components that have a significant positive impact on AIS user satisfaction in Greek hotels. At the same time, user's education and organizational structure have a significant effect on the dependent variable but contrast with the hypotheses. Moreover, a user's age does not have a statistically significant impact on AIS user satisfaction. In general, the above results are largely consistent with previous empirical studies in different types of IS and economic sectors, confirming, in this respect, the related literature.

Specifically, the statistically significant positive effect of system quality, information quality, service quality, and system usage on user satisfaction confirms the model of DeLone and McLean (2003) in the case of AIS in the hotel industry. Thus, the usability and performance characteristics of the system, the quality of the information produced by the system and its usefulness, the quality of the service and support received by the users of the system, and the extent to which the system is used are important determinants of the level of AIS user satisfaction. Furthermore, the negative effect of user education on AIS user satisfaction is an unexpected finding based on the literature review and most empirical studies. However, as Carey (1997) points out, this result may be because users with more education express higher demands of a system and therefore show a lower degree of satisfaction. Furthermore, the positive effect of firm size suggests that larger hotel firms, having greater resource adequacy, can spend greater amounts on IT and define their

information needs, thus causing greater user satisfaction as they gain access to IS that meet their overall requirements.

According to the research results, and contrary to the hypothesis formulated, the AIS users in hotels with a more organic structure show a higher degree of satisfaction. This finding enhances the argument of [Montazemi \(1988\)](#) that organic firms carry out a thorough assessment of information needs, promote user participation, and use specialized software to a greater extent. At the same time, an important determinant of AIS user satisfactions is the years of operation of the system. The length of time after the system has been installed plays an important role in the degree of user satisfaction as the longer the years of operation, the more familiar users feel with the system they are using, and consequently, their satisfaction increases ([Bradford and Florin 2003](#)). This result confirms the time lag ([Brynjolfsson 1993](#)) that exists for the IS benefits to be realized.

The positive effect of integrated information technology on the degree of satisfaction of users of accounting information systems is consistent with the literature and the results of previous research ([Hussein et al. 2007](#); [Tatari and Skibniewski 2011](#)). IT integration increases the level of AIS user satisfaction as it achieves higher level of efficiency, integration of information and exchange of data, feedback, and proposals ([Mancini 2016](#)). Finally, the age of the AIS users is the only factor that does not affect the dependent variable. Although the sign of the coefficient is negative, suggesting that younger users who are more familiar with the technology tend to be more easily satisfied, user's age does not amount to a determinant of AIS user satisfaction.

Overall, the multiple regression analysis showed that the predictors explain, to a significant extent, the overall variance of AIS user satisfaction, confirming the predictive ability of the model and the choice of variables. Moreover, the results of the current study have highlighted that the success of AIS is a function of different factors acting simultaneously. Under this view, apart from the elements of DeLone and McLean's ISSM as supported by most previous studies, it is important take IS characteristics, contingency variables, and significant users' attributes into consideration when examining the influential factors of AIS user satisfaction.

7. Implications

The current study has explored a number of factors that influence AIS user satisfaction in the post-implementation period in the case of the Greek hotel industry. Despite the importance of AIS in managerial and financial performance, and the highly competitive and dynamic nature of the hotel industry, research in this area is scarce. The findings of our research provide several theoretical and practical implications.

Theoretically, this study introduces a model that can more adequately predict AIS user satisfaction as an indicator of AIS success in the post-implementation period, combining DeLone and McLean's ISSM, the characteristics of IS, contingent factors, and the user's attributes. The explanatory power of our model justifies the incorporation of different theoretical frameworks, extending, as it does, the IS literature. Integrating theoretical foundations in the topic of IS success may lead to advanced structural models who will reveal the antecedents of IS user satisfaction.

The results of our research confirm the suggested relationships of DeLone and McLean's ISSM in the case of AIS user satisfaction in the hotel industry, outlining the power of the model. Except for the technical elements, it fills the gap in the AIS literature by revealing additional influential factors behind AIS user satisfaction, suggesting that the firm's size, the organizational structure, the IT integration, the years of system use, and the user's education play significant role in the level of user satisfaction with the system and the generated information. Moreover, this study expands IS research in the hotel industry, outlining important determinants of IS effectiveness and suggesting a framework under which IS success has to be examined in the industry. In conclusion, our research findings offer support for previous studies and provides new avenues for further research.

This research also creates several managerial implications. As per Ham et al. (2005), users' perceptions of IT applications need to be taken into account when considering the relationship between IS and hotel performance. In this vein, and considering user satisfaction to be a proxy of IS success, the research findings reveal that information quality, system quality, service quality, system usage, company's size, and IT integration affect AIS success to a great extent. Therefore, it is of great importance for hotel managers to pay attention and make the right decisions regarding their investments into IT integration, the desired system characteristics, the choice of AIS vendor who will provide support services, and the customization of the system based on the users' needs in order to achieve a higher level of AIS user satisfaction. Consequently, the use of integrated information generated by AIS that meet the requirements of hotel financial and accounting executives will enable the implementation of modern and complex management accounting systems and practices which, sequentially, lead to improved financial and managerial performance. Furthermore, as long as the success of AIS is evaluated, hotel managers should bear in mind that time is needed in order for a higher level of AIS user satisfaction to be obtained, and the demands of highly educated personnel will not be easily satisfied.

Since AIS user satisfaction is regarded to be the best surrogate of AIS success, system developers and vendors should take into account the information requirements of users (Lee and Rhim 2014) and seek feedback on users' perceptions of the AIS's strengths and weaknesses. Thus, our research results can be a guide for designers and IS developers in the customization of accounting applications. According to the research findings, system characteristics, contingent factors, and user attributes affect AIS user satisfaction. Consequently, there must be close cooperation between the hotel financial and accounting executives and IS developers in order for the maximum effectiveness of these systems to be achieved. With the aim of meeting the needs and requirements of users, conducting seminars to provide continuous feedback in terms of information would enable AIS to be modified and adapted to address their potential weaknesses. Moreover, as Stefanou (2006) suggested, AIS must be adapted to the technological and business environment to ensure their effectiveness.

8. Limitations and Further Research

This paper has a few limitations, which future research could address. The first one is the low response rate of the survey; a future study that achieves a sample size of at least 200 observations could apply the structural equation modeling technique (Hoe 2008) to examine the relationships among the constructs. Furthermore, as this research was conducted in the Greek hotel industry, and specifically in hotels belonging to the over-three-stars (3***) category with a view to achieving greater internal validity, the generalization of the results to other industries should be made with caution. Future studies should explore the proposed model in different business sectors and countries. Moreover, since a significant number of hypotheses were accepted, this model can be tested in other types of IS. As long as the contingency variables used in the research remain focused on the internal business environment, future studies may examine the impact of external contingent factors such as market competition, environmental uncertainty, etc. Meanwhile, it is advised that factors such as training, IT budget, and top management support be considered when investigating the determinants of AIS user satisfaction. Additionally, as our study focuses on the post-AIS-implementation period, it could be useful to examine the identified influential factors during the AIS project implementation stage. Finally, since our construct variables are based on the users' perceptions, a longitudinal approach to this study should be applied because the needs and the beliefs of users may change over time.

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