The Impact of Information Technology on Customer Relationship Management The Impact of Information Technology on Customer Relationship Management (Case Study: Travel Agencies in Batna) Khennoufa Ouarda Benziane Iman PhD student Professor, Batna 1 University

Abstract

This research paper aims to investigate the availability of information technology within travel agencies in the city of Batna, and its impact on customer relationship management.

Data was collected from nineteen travel agencies through a questionnaire designed for the purpose of the study, this latter used descriptive statistic methods to interpret the data and to test the hypothesis which aims to analyze and detect the relationship between the direct influence of information and technology and the customer relationship management.

The findings showed that there is no relation or impact of information and communication technology on customer relationship management. A set of recommendation was provided.

Key Words: Information Technology, Customer Relationship Management, Travel Agencies.

الكلمات المفتاحية: تكنولوجيا المعلومات، إدارة العلاقة مع الزبون، الوكالات السياحية.

INTRODUCTION

The technological evolution has become a trait of the final quarter of the last century in a way that affected all aspects of life and led to the emergence of new approaches. These approaches can be used in a variety of areas and can increase the efficiency and effectiveness of performance in these areas.

Customers are considered the core of any organization; they are the real wealth of these organizations and the leaders of the economy. Organizations should care for customers and build a strong, long-term correlation with them; this correlation is called customer relationship management. It means the ability to constantly communicate with customers using a variety of different ways.

Customer management relationship is used as systems to understand customers' attitudes by adding a personalization to the relation between an organization and its customers.

Under the new perception of seeing a customer and considering him as the main reason behind the success of any organization, the research problem can be summarized as follow:

How can information technology contribute in customer management relationship at travel agencies?

STUDY HYPOTHESIS

The Impact of Information Technology on Customer Relationship Management In conducting this research study, we propose this hypothesis:

H: There is no statistically significant impact of information technology on customer management relationship at travel agencies studied on significant level of 5%.

Under the main hypothesis, a set of partial hypotheses was set:

 H_1 : There is no statistically significant impact of hardware and software technologies on customer management relationship in travel agencies studied on significant level of 5%.

 H_2 : There is no statistically significant impact of networks technologies on customer management relationship at travel agencies studied on significant level of 5%.

STUDY OBJECTIVES

The study aims to achieve the following objectives:

- To present the theoretical aspects of both information technology and customer management relationship.
- To define theoretically the relationship between the use of information technology and customer management relationship.
- To define the reality behind using travel agencies studied of information technology.

- To analyze the relationship between information technology and customer management relationship at travel agencies studied.

- To draw the attention of travel agencies managers, to the presence of modern techniques that can be used in order to build a permanent relationship with their customers.

STUDY APPROACH

In order to reach a precise knowledge about different elements of the research problem, and for a better and accurate understanding, an inductive and a deductive approach were used. The deductive approach was used in the analytical vision of the subject and the inductive approach was used in the applied study.

I.LITERATURE REVIEW

I.1. Information and communication technology

Information Technology as a technical support for human thinking and communication has been evolving over thousands of years. New developments have been rapid over the last few decades.

I.1-1- Definition of information technology

Information Technology (IT) is a new technology applied to the creation, storage, selection, transformation and distribution of information of many kinds. It has been defined differently by different people. IT, as defined by the Information Technology Association of America (ITAA), is "the study, design, development, implementation, support or management of computer-based information systems, particularly software applications and computer hardware¹".

According to Gopinath, IT consists, a group of technologies, which particularly cover the computers capability to store and process information known as information processing and telecommunication technology which are capable of transmitting information to distances².

So Information Technology (IT) is a generic term that covers the acquisition, processing, storage and dissemination of information. It involves the application of computers and communication technology in the task of information handling. It is restricted to systems dependent on microelectronics based combination of computers and telecommunication technologies.

I.1-2- Definition of information and communication technology

Information and communication technology is the production management networks, processing, distributing and the optimum use of information in order to improve system performance³. Information technology is a revolution and its purpose is to create the foundation of electronic supply chain. The intelligent use of information technology causes the information exchange through internet, prevents redundant data entry, provides the required information within the required time, allows managers to

receive the complex information more efficiently and exchanges the information easier among supply chain members, so the provider – customer communication can be improved⁴.

I.1-3- Role of information technology:

Information technology (IT) has become a vital and integral part of every business plan. From multinational corporations who maintain mainframe systems and databases to small businesses that own a single computer, IT plays a role. The reasons for the omnipresent use of computer technology in business can best be determined by looking at how it is being used across the business world⁵:

- Communication: For many companies, email is the principal means of communication between employees, suppliers and customers. Email was one of the early drivers of the Internet, providing a simple and inexpensive means to communicate. Over the years, a number of other communications tools have also evolved, allowing staff to communicate using live chat systems, online meeting tools and video-conferencing systems. Voice over internet protocol (VOIP) telephones and smart-phones offer even more high-tech ways for employees to communicate.

- Inventory Management: When it comes to managing inventory, organizations need to maintain enough stock to meet demand without investing in more than they require. Inventory management systems track the quantity of each item a company maintains, triggering an order of additional stock when the quantities fall below a pre-determined amount. These systems are best used when the inventory management system is connected to the point-of-sale (POS) system. The POS system ensures that each time an item is sold, one of that item is removed from the inventory count, creating a closed information loop between all departments.

- Data Management: The days of large file rooms, rows of filing cabinets and the mailing of documents is fading fast. Today, most companies store digital versions of documents on servers and storage devices. These documents become instantly available to everyone in the company, regardless of their geographical location. Companies are able to store and maintain a tremendous amount of historical data economically, and employees benefit from immediate access to the documents they need.

- Management Information: Systems Storing data is only a benefit if that data can be used effectively. Progressive companies use that data as part of their strategic planning process as well as the tactical execution of that strategy. Management Information Systems (MIS) enable companies to track sales data, expenses and productivity levels. The information can be used to track profitability over time, maximize return on investment and identify areas of improvement. Managers can track sales on a daily basis, allowing them to immediately react to lower-than-expected numbers by boosting employee productivity or reducing the cost of an item.

- Customer Relationship Management: Companies are using IT to improve the way they design and manage customer relationships. Customer Relationship Management (CRM) systems capture every interaction a company has with a customer, so that a more enriching experience is possible. If a customer calls a call center with an issue, the customer support representative will be able to see what the customer has purchased, view shipping information, call up the training manual for that item and effectively respond to the issue. The entire interaction is stored in the CRM system, ready to be recalled if the customer calls again. The customer has a better, more focused experience and the company benefits from improved productivity.

- I.2- Customer relationship management
- I.2-1- Definition of customer relationship management concept

Customer relationship management is a relatively new term; it has only been used since the 1990s. There is no consensus on how CRM should be defined, but there are several definitions for the expression. While CRM is mostly understood to mean strategic management concept, it can be sometimes used to mean customer relationship marketing as well. In information technology, CRM is often used to depict merely the software applications used in marketing, selling and service operations of a business. CRM is as an approach a company can use to develop and maintain their customer relationships profitable⁶.

CRM can be defined as an organizational approach that seeks to understand and influence customer behavior through meaningful communications in order to improve customer acquisition, retention, loyalty and profitability⁷.

Customer relationship management is a strategy manages the relationships between customers and business processes. It uses technology to management, automation and making business process simultaneously⁸.

The most general form of customer relationship management is a strategy between customer and business processes through the process of storing and analysing of large amounts of data that provides insight into customer behavior. This in turn enables the organization to treat customers differently based on the exhibited behaviour.

According to Storbacka and Lehtinen, the three cornerstones of CRM are: customer value creation, viewing the product as a process, and providers' responsibilities:⁹

- Customer value creation means that it is more important to establish a long-lasting relationship with a customer rather than trying to gain as much profit as possible at once. Thus, competitive advantage is not necessarily based on price, but also on helping the customer to create value for themselves.

- Viewing the product as a process means seeing the product as an entity that involves an exchange between the provider and the customer. In this exchange customer value creation comes from the provider's competence. In this approach it is not necessary to make a difference between goods and services.

- Providers' responsibilities relate to not only satisfying customer needs but also to taking on the responsibility of developing strong and lasting customer relationships.

The basis of customer relationship management is customer information and customer analysis, which enable segmentation of the existing and potential new customers¹⁰.

I.2-2- BENEFITS OF CRM

CRM is about making each and every customer feel like they have a one-to-one relationship. Effective CRM gives the opportunity to show your customers that¹¹:

- The organization knows and recognizes them.
- It understands them, cares about their needs, questions and concerns.
- It wants to deliver services and products they need the most.
- It appreciates their business.

CRM will also benefit the organization by:

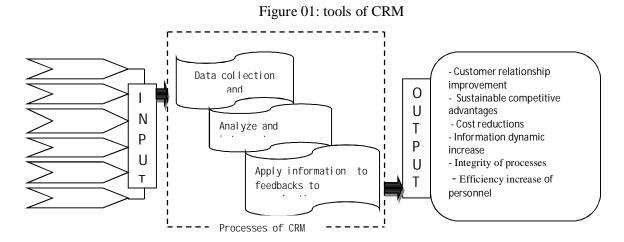
- Reducing marketing costs.
- Increasing sales¹².
- Developing superior services and products that meet your customers' identified needs.
- Enhancing marketing towards the most profitable customers.
- Improving efficiency by providing support and services to customers online.
- Anticipating future business needs based on data on historic sale and service trends.
- Increasing customer base¹³.

I.2-3- TYPES OF CRM

Four main types of CRM have been identified. These four segments partially explain the different definitions of customer relationship management. Operational CRM means acquiring a software application which combines marketing, selling and service functions of an organization¹⁴.

I.2-4- Using information technology for customer relationship management

The figure 1 presents the technological tools used in the application of CRM



Resource: Mahdi Bahrami, Mazaher Ghorbani, S. Mohammad Arabzad, "Information Technology (IT) as An Improvement Tool For Customer Relationship Management (CRM)", International Conference on Leadership, Technology and Innovation Management, Procedia - Social and Behavioral Sciences 41, (2012), p. 62.

 \succ In order to better utilization, researchers, contractors and civil engineers can save time and money through proposed preventive and corrective actions, quantization delay factors and finally calculate and compare obtained RPN numbers. It should be mentioned that engineers and employers of different projects should try to produce the greatest improvement with spend less resources. This high efficiency will not be possible except through the prioritization of defects, based on reliable scientific data, so that corrective actions are taken to be as competent and efficient planning Within this framework, all types of information technology tools that organizations and enterprises use them in their business processes are defined as "input". Customer Relationship input channels including web, call centers and mobile technology.¹⁵

Also short message service, telephone marketing activities, e-mail, fax centers are other communication methods that are unitized in collecting customer data. In "processes" step, raw data that are sent from different input channels by using these technologies to organization or company are analyzed and processed by experts. In "output" step, very valuable and useful results and data are concluded. Sustainable competitive advantages ¹⁶, cost reductions ¹⁷, customer relationship improvement ¹⁸, information dynamic increase, communication rapidity, remote access ¹⁹, personnel efficience increase, processes integration are the most important and fundamental results of this framework. It is needed companies use all technologies for more effective communication with their customers to maximize these benefits and have maximum output²⁰.

These techniques enabled the organization to stay in contact with its customers, retain them and attract new customers; they also allow evaluating and handling information in real time and then provide customers with personalized offers.

II. THE FIELD STUDY

II.1- Methodological framework

II.1-1- Study tools

A questionnaire was used as the main research tool for data collection, where the five-level Likert scale was adopted. Cronbach's alpha was used to examine the validity and stability of the questionnaire and to measure its reliability in terms of the internal consistency. Its percentage has reached 86% which enabled us to accept the results of the analysis.

- Descriptive analysis, represented as the iterations and the percentages, was used to get to know the generic data on the type of sample study.
- Averages and standard deviations were used to find out the overall average for the answers of the respondents to the questionnaire statements.
- Testing correlation and simple regression was used to test the hypothesis.

II.1-2- POPULATION AND STUDY SAMPLE

The population of the study is represented by nineteen travel agencies of Batna city. The sample of the study involves examining the entire population through the distribution of nineteen questionnaires to managers of travel agencies.

The research findings showed a range of demographic characteristics for the research sample individuals. These characteristics can be presented as follow:

Characteristics Pourcentage				
	Less than 30 years	From 30 to 40 years	More than 40 years	
Age	21,1%	47,4%	31,6%	
	Secondary	Bachelor	Higher Education	
Educational Level	0%	68,4%	31,6%	
	Less than 5 years	From 5 to 10 years	More than 10 years	
Work Experience	15,8%	42,1%cc	42,1%	

Table 01: Demographic characteristics of the sample individuals

Resource: the table was made according to SPSS outcomes.

From the table above we notice that:

Age: The highest percentage was the age category over 40 years with 52.3% while the lowest percentage was the age category of less than 40 years with 13.6%.

Educational Level: The highest percentage was for bachelor level with 68.4% followed by the category of higher education with 31.6% and the percentage of the secondary level was 00%. This indicates that the majority of respondents have a high educational qualification which is a positive sign.

Work Experience: The highest percentage was the category of more than 10 years of experience with 47.4%, and then the category of from 5 to 10 years of experience with 36.8% and the lowest percentage was the category of the lowest work experience with 15.8%. These percentages indicate that travel agencies managers do have a considerable experience in their field of work.

II.2- Information technology and customer relationship management in the agencies studied

This part of study presents individuals' responses about the statements provided to them where an arithmetic mean is used as a tool for evaluation. In this regard and in order to define the average value within the evaluated categories, this equation will be used: (The highest percentage - The lowest percentage) / Number of values = (5-1)/5=0.5 and accordingly the assessment categories are divided into groups as follow:

- First evaluation - Very Weak: It expresses the averages value confined between]1; 1.8[, and it indicates that the rejection of the statement validity is almost absolute.

- Second evaluation -Weak: It expresses the averages value confined between]1.8; 2.6[, and it indicates a relative rejection of the statement validity.

- Third evaluation-Medium: It expresses the averages value confined between]2.6; 3.4[and it indicates that either the half of respondents accepted the statement validity and the other half rejected it or all were neutral.

- Fourth evaluation -Good: It expresses the averages value confined between]3.4; 4.2[, and it indicates a relative acceptance of the statement validity from respondents.

- Fifth evaluation -Very Good: It expresses the averages values confined between]4.2; 5[, and it indicates that the statement validity acceptance from respondents is almost absolute.

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Table 02: Descriptive standards of the sample's responses toward the information technology and customer relationship management

Variables	Average	Standard deviation	Order	Value
Information Technology	4.01	0.74	/	Good
Hardware and Software	4.10	0.77	2	Good
Networks	4.10	0.78	1	Good
Customer Relationship Management	3.32	0.69	/	Medium

Resource: the table was done according to the SPSS outcomes.

Table 02 shows that the overall average of information technology variable equals to (4.01) which is a positive value which indicates that there is a relative acceptance for the statement validity from respondents, where the statements of the first indicator "hardware and software" took an average of (4.10) while the statements of the second indicator "networks" took an average of (3.93).

First indicator – Hardware and Software: from respondents' responses, we concluded that hardware and software are available in most of travel agencies and they are used in the collection, interpretation and storage of customers' data.

Second indicator – Networks: from respondents' responses, we concluded that there is a relative acceptance of statements validity from respondents and therefore travel agencies are well equipped with networks (Internet, Intranet and Extranet), these networks are used in the process of communication and information flow.

Table 02 showed that the total average of customer relationship management variable reached (3.32) which means that either half of the respondents accepted the statement validity and the other half rejected it or that everyone remained neutral. This confirms that half of the respondents at travel agencies in Batna city assure their application of customer management relationship through collecting data about their customers using the subsidiary offices of their agencies, in addition to postal mail, phone and fax. And then comes data handling and customer communication using the same methods used in data collection. The other half of respondents affirms not applying customer relationship management in their travel agencies.

II.3- Testing the hypothesis

The hypothesis of the study is tested through the analysis of influence relationship.

II.3-1- At macro level (the main hypothesis)

To identify the existence of an influence relationship of information technology on customer relationship management variable at travel agencies, and in order to test the sample's ability of interpretation, all correlation coefficient R, coefficient of determination R^2 and average coefficient of determination R^{-2} were used. This provides a precise and accurate interpretation due to the presence of more than one variable as it is demonstrated in table 03.

Correlation Coefficient R	Coefficient of Determination R2	Average Coefficient of Determination R-2	Standard Error
0.37	0.15	0.043	0.68

Table 03: Summary of regression model

Resource: The table was made according to the SPSS outcomes.

The table above shows that correlation coefficient was equal to (0.37) which indicates the existence of a medium, positive relationship between both the independent and the dependent variable. The overall value of the coefficient of determination R² reached (0.15) which indicates that the independent variable explains 15% of variance in the dependent variable and the remaining percentage is related to other factors that are not studied.

	Total sum of squares	Degrees of freedom	Average contrast square	Calculated value of F	Level of Significance	
Regression	1.31	2	0.65	1 40	0.227	
Residuals	7.46	16	0.46	1.40	0.237	
Total	8.77	18				

The Impact of Information Technology on Customer Relationship Management Table 04: Analyzing the regression variation ANOVA

Resource: The table was made according to the SPSS outcomes.

From table 04, we notice that the calculated value of F is equal to (1.40) and the value of significance level reached (0.237) which means that the value of F is statistically insignificant, and that the acceptance of the null hypothesis which states that there is no statistically significant impact of information technology on customer management relationship at travel agencies on a significant level of 5%.

II.3-2- AT THE MICRO LEVEL (THE PARTIAL HYPOTHESIS)

In order to test the partial hypothesis, we adopted the T test. To test the significance of each parameter of the model parameters at the significant level α =5%. Table 06 will clarify that.

	В	Т	BETA	Error standard	Level of Significance (SIG)
The constant	2.00	2.25	/	0.88	0.038
Hardware and software	0.43	1.26	0.48	0.34	0.22
Networks	0.11_	0.34_	0.13_	0.33	0.73

Table 06: The test of regression according to "T"		Table 06:	The test	of regr	ession	according to	"T"	
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Resource: The table was made according to the SPSS outcomes.

a. The first partial hypothesis:

There is no statistically significant impact of hardware and software on customer management relationship at travel agencies in the study on a significant of level 5%.

It indicates that the value of regression coefficient for hardware and software reached (0.43) on the other hand, the value of T is (0.26) which is statistically insignificant, where the value of the level of significance (SIG) reached (0.22), and thus we accept the null hypothesis which states that there is no statistically significant impact of information technology on customer management relationship at travel agencies in Batna city on a significant level of 5%.

b. The second partial hypothesis:

There is no statistically significant impact of networks on customer management relationship at travel agencies in the study on a significant level of 5%.

It indicates that the value of regression for networks variable reached $(_0.11)$ and T value on the other hand is (0.34) which is statistically insignificant, where the value of the significant level (SIG) reached (0.73), and thus we accept the null hypothesis H0 which states that there is no statistically significant impact of information technology on customer management relationship at travel agencies in Batna city on a significant level of 5%.

III. RESULTS AND RECOMMENDATIONS OF THE STUDY III.1- RESULTS

From the research study, we identified the contribution of information technology on customer relationship management within travel agencies. The main results are summarized as follow:

III.1-1- Theoretical results

- Information technology enables institutions to know customers' needs and desires and then achieve them.

- It enables associations to produce products according to customers' needs and expectations through the use of information technology and data storage of customers as well as through advanced analysis of this information.

- The importance of adopting a customer relationship management program appears through enabling the association to achieve tangible financial results through the acquisition of various customer transactions and keep it for a longer period in one hand, on the other hand is to acquire the necessary knowledge of the customer that characterizes the association.

- The use of information technology by associations enables them to activate the process of customer relationship management, and then to build permanent relationship with them.

III.1-2 Practical results

The study produced the following results:

- Respondents agreed that hardware and software are available at most travel agencies, and they are used for data collection, interpretation and storage about their customers.

- Respondents agreed on the availability of networks (Internet and Intranet) in their travel agencies, as well as using them for internal communication and to facilitate information flow.

- Half the respondents agreed on applying customer relationship management in their agencies while the other half agreed on not applying customer relationship management by their agencies.

- There is no relationship between hardware and software and customer relationship management in agencies studied.

- There is no relationship between networks (Internet, Intranet and Extranet) and customer relationship management at travel agencies studied.

- There is no influence relationship between information technology and customer relationship management at travel agencies studied.

III.2- RECOMMENDATIONS

According the study findings, the following recommendations are provided:

The necessity of training all the staff on how to deal properly with customers.

- The necessity of training all employees on how to best use information technology to improve their relationship with customers.

- It's essential for travel agencies to care about their current customers in order to avoid the costs of gaining new ones.

- It's essential for managers to equip their travel agencies with modern technologies to expand their communication networks and to facilitate connecting with customers.

- The need to understand the philosophy of customer relationship management as it enables the best identification of customers and ensures their satisfaction and loyalty.

- The need to integrate information technology applications in institution's strategy to manage its relations with its customers.

- Taking into consideration the financial benefits that can be obtained by travel agencies in the case of integrating information technology in their applications of customer management relationship.

- In order for travel agencies in Batna city to increase their competitiveness, they must be directed towards the intensive use of information technologies because of its benefits in improving relations with their customer management.

CONCLUSION

This study focused on the analysis of the impact of Information Technology on the implementation of the Customer Relationship Management at the tourist agencies of the city of Batna. The results showed that agencies use Information Technology for storage of customer information, use Internet and Intranet to facilitate communication. The results also showed that there was no significant correlation between Information Technology and Customer Relationship Management.

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