

# Towards the Digitalization of Hotel Business in Nigeria: The Design Perspective

Omogbhemhe Izah Mike and Awojide Simon

**Abstract**— In a time when establishing and maintaining of market advantage is crucial in the world at large and in the hotel business in particular, the use of technical innovation such as the hotel reservation system becomes a competitive necessity in the hotel business. This leads to digitalizing this business and improving its operations. In view of this, this paper has provided an overview of Hotel Reservation System (HRS), provided a digital design for the such system. It also discusses the advantages associated with integrating the system across the hotel business and what and where the potential gains are in Nigeria. The hotel reservation system developed in this work, when fully implemented, will go a long way to addressing the problem faced by the hotel management in the area of managing their customer's booking, management of customer's information and having quick access to information.

**Index Terms**— Digitalization, Hotel, Hotel Business, Hotel Reservation System.

## 1 INTRODUCTION

Computer has virtually affected all aspect of human thinking and human endeavor. It has changed the way we react to event, process information, manipulate operation and so many others. Computer is an electronic machine that accepts inputs, process them and output information for accurate decision making. Computers carry out its operation with the speed of light; that is why it is highly reliable and very fast in manipulating data. Computer can do a job so fast than hundred of people could not when time factor is taken into consideration. Computers are applied in medicine, government agencies, education, commerce, banking etc. Also computer is widely applied in the management of the hotel operations. Hotel reservation system is a kind of system used by customers to booking of hotel space while in the comfort of their home, offices etc. Before now, there has been much discussion concerning how the information technology may contribute to the development of a competitive advantage. While there are some notable examples, investment in information technology (IT) is often a matter of competitive necessity. The technological advantages emerging from the integration of computing, microelectronic, and telecommunications are creating significant changes in organisation [1]. The information technology revolution of the past 20 years has made information technology an integral part of any core business activity. Information technology management now contribute to all the management fametions of planning, organising, leading and controlling and affects competitive strategy and business operation like hotel business.

Since the beginning of commercial operation of hotels, hotels have developed a wide range of co-operative arrangements to provide a wider, more efficient range of services [2]. The system offers hotels the ability to expand their project line to meet a broader range of customer needs through gaining access to product and services of companies to which they have a strategic alliance. While there is a diversified range of hotel reservation systems provider covering the global market, from the smaller to the larger such as one world. They have form alliance not only with hotels but also with airlines, and motels accomodation providers, railways, car rentals etc to offer a seamless service dictated by supply and demand. It is the extension of alternative service available to hotels, which allow them to gain a competitive advantage over those hotels that have chosen alternative methods. With Hotel Reservation system, the hotel industries can be provided with hotel management assistance by addressing financial,

administrative and staffing issues. These includes; room management, accounts operations, planing and scheduling hotel maintenance, decision support for control of overbooking, discourt room allocation and yeild management programs that dignamically adjust the number of special fare rooms based on the number of reservations.

Till today most hotel businesses in Nigeria use pen and paper to booking their customers information that wishes to patronize them. This is to say that the customer must be present in the hotel for his booking and other information needed. The everyday increased in number of customers has brought many difficulties and chanllenges to this method of booking customers information (manual). The ability to connect people and tasks within and between the hotel organizations digitally has become a strategic necessity. Hence, this paper discuses a detailed overview of the digital means of handling the hotel operations and other vital operations within the hotel business, like staffing with a view of designing a digital system that will help the hotels company to manage customer booking information with ease.

## 2. Related Work

Information technologies and the usage of internet have been widely used and spread throughout organisation locally and globally as a result of its advantages to businesses [3]. It has expanded dramatically and now, internet system usage has become the most needed in academic field, financial, business, traveling and many more. As far as the organisation era is concern, it estimated that about 50 percent of all new capital investment in organistions has been in information technology [4] which shows the important of it today. This change has been witnessed in hotel businesses around the globe which is moving and changing with information technology thereby digitalizing their operations. Hotels reservation system is introduced in most countries of the world and now becoming a growing distribution channel for their product and services. The conventional way of hotels reservation remains the most widespread method for conducting hotels reservation in most countries of the world. However, information and internet technology is rapidly changing the way hotels reservation service are being designed and delivered. An information system

collects, processes, stores, analyze and disseminates information for a specific purpose. An information system includes inputs (data, instruction) and output (reports, calculations). It processes the inputs and produces the outputs that are sent to the user or to other systems. Several types of information system exist for different objectives and uses. Nowadays, information systems are now becoming increasingly critical to the daily operations and success of many firms.

Meanwhile, the application of the Internet in the business world has become a major trend in practice and generated a hot stream of research in the recent literature. The Internet, as a collection of interconnected computer networks, provides free exchanging of information. Over 400 millions of computers or more than 400,000 networks worldwide today are communicating with each other [5]. As such, the Internet has been becoming a powerful channel for business marketing and communication [6], and for new business opportunities - as it is often called as "e-business" or "e-commerce" today [7]. This new e-business or e-commerce virtual marketplace allows small companies competing with business giants by just having a better web presentation of their products/services. Under the same wave, online customers can enjoy a wider choice of products or services, more competitive prices, and being able to buy their favorite items/services from the sellers located thousands miles away. It provides communication between consumers and companies through electronic data interchange (EDI), buyers and sellers can exchange standard business transactions such as invoices or purchase orders with remarkable ease [8].

### Methodology

The design science approach was used to carry out the research in this paper. The approach was defined in the work of [9] as a good approach that provides a method for conducting research and provides a model for the research output. Hence, this research was carried out using this approach. Using the design science approach, the steps enumerated below were followed

- Identification and definition of the Problem: This is the process of establishing the problem to be solved.
- Possible Solution: This is the identification of the possible solutions to the identified problem
- Model Design: This is developing the solution to the problem in form of a model.
- Demonstration: Demonstrating how efficient will the model solve the problem
- Evaluation: Observing how good the model supports the solution to the problem.

Similarly, the system was implemented using visual C# programming language and Microsoft Visual Studio 2010 and SQL server 2008 were used as the test bed for the implementation for both the system interfaces and the system database respectively.

### The Proposed System

Naturally, to design any electronic system, such system must poses some features of its manual and possibly improves on its. Therefore the hotel reservation system developed in this paper has features of the manual system. The features of the manual system are the different fields of information used in the manual system during hotel space booking. However, by improving on

the general system, the system will provide a feature through which space information can be displayed in the interface for the users to see the available room information at a particular point in time. Also provided in this electronic system, is the feature of authentication. This will enable only eligible and registered staff of the hotel to have access to customer's information booking for a space in the hotel, so that wrong attention will not be given to the user or customer. Hence, the pictorial representation of the system with it divided into interface, codes and database is shown in fig. 1.

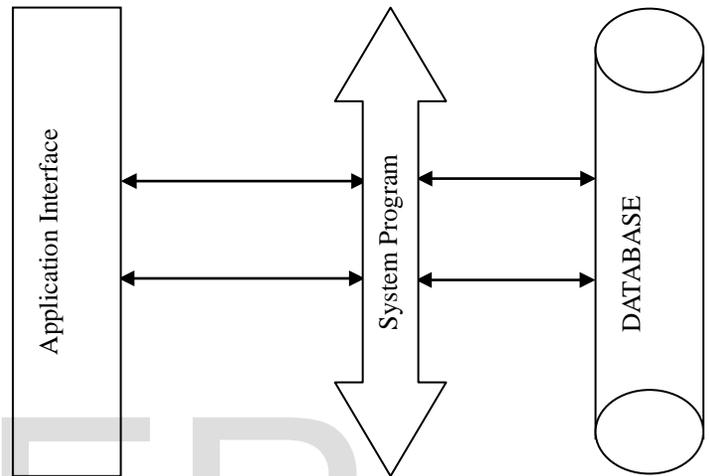


Fig. 1: System Design

Similarly, the algorithm for processing booking with the digital system provided in this paper is as given below:

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Step 1: ENTER SURNAME
Step 2: ENTER OTHERNAMES
Step3: ENTER SEX
Step 4: ENTER NEXT OF KIN
Step 5: ENTER KIN ADDRESS
Step 6: ENTER PHONE NUMBER
Step 7: ENTER ENTERING DATE
Step 8: ENTER LEAVING DATE
Step 9: TIME
Step 10: ENTER ROOM NUMBER
Step 11: ENTER ADDRESS
Step 12: ENTER DATE OF BIRTH
Step 13: ENTER NATIONALITY
Step 14: ENTER OTHER MESSAGE
STEP 15: FORMFIELD= NUMBER OF FIELDS IN THE
FORM

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FOR (INT NINPUT=1; NINPUT<FORMFIELDS; NIN-
PUT=NINPUT+1)
{
    GET FORM_ENTRY();
}

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STEP 16: CARRY OUT BOOKING
STEP 17: STOP

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### Design of Space Booking Database Table Layout Structure

This is a database table that stores all the information of

the people that have booked for space in the hotel. This table has different field of information concerning the booking.

Table 1: Booking Table Design

S/N	FIELD NAME	DATABASE	SIZE	KEY
1	Book -id	INT	1,1	Primary
2	Username	Varchar	30	Null
3	Other name	Varchar	30	Null
4	Sex	Char	10	Null
5	Next of Kin	Varcher	30	Null
6	Kin Address	Varcher	30	Null
7	Phone	Char	13	Null
8	Date Entered	Datetime	Null	Null
9	Date Leaving	Datetime	Null	Null
10	Time	Char	5	Null
11	Room No	Varchar	30	Null
12	Address	Varcher	80	Null
13	Date of Birth	Datetime	Null	Null
14	Nationality	Varchar	30	Null
15	Other message	Varchar	30	Null

**Design of Staff Database Table Layout Structure**

Staff table is the database table that stores all the information of registered staffs. Its purpose is to authenticational the user of the application. It has a primary key column to uniquely identify a particular user of the application and the information of the user. Thus, the structural design layout of this table is as shown in the figure below:

Table 2: Staff Table Design

S/N	FIELD NAME	DATA TYPE	SIZE	KEY
1	Staff-id	INT	1,1	Primary
2	Staff name	Varchar	40	Null
3	Phone no	Char	13	Null
4	User Name	Varchar	20	Null
5	password	char	20	Null

**SYSTEM TESTING SAMPLES**

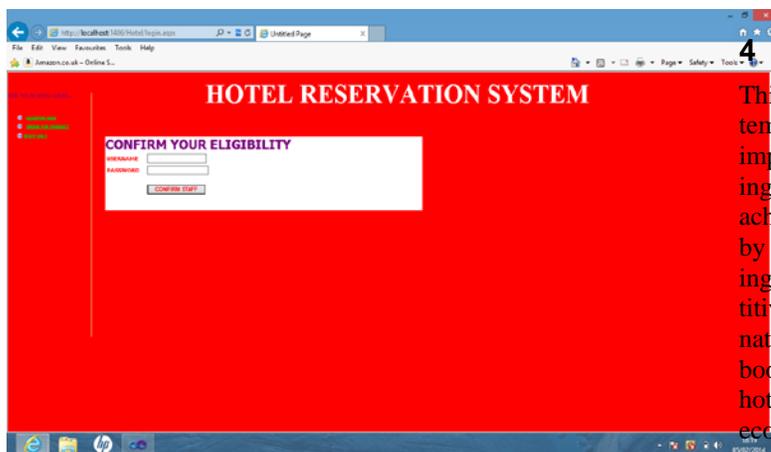


Fig 2: Staff login interface

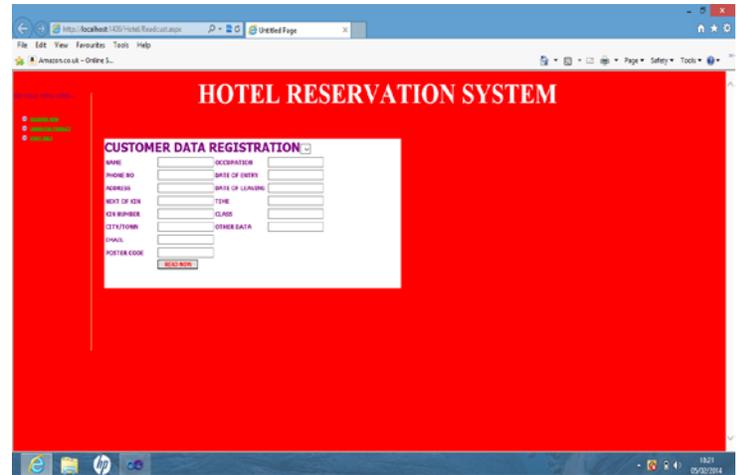


Fig 3: Customer data management interface

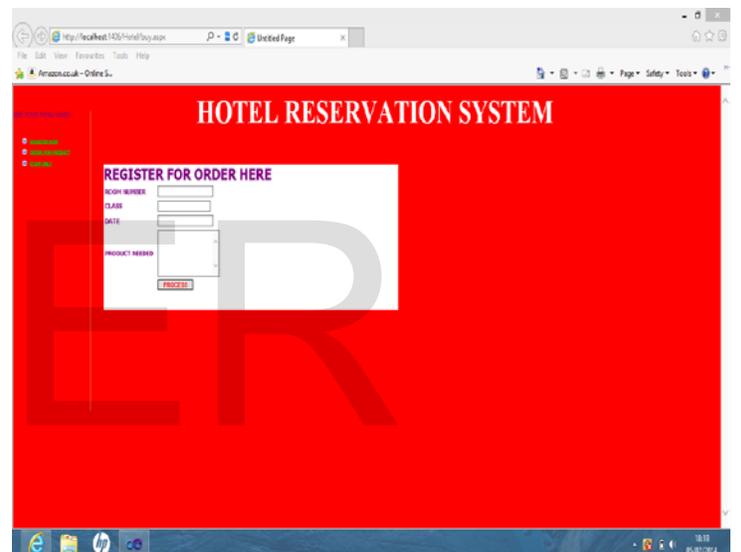


Fig 4: Customer booking interface

**4 CONCLUSION**

This paper has presented an overview of Hotel Reservation System and a platform for the practical design, development and implementation of Hotel Reservation System application. Executing/testing this system shows that its objectives of design were achieved in this paper. Truly if the system is fully implemented by the Hotel business in Nigeria, it will go a long way to improving their business operations and the advantage in market competitiveness of the hotel businesses and also go a long way to eliminating the challenges faced by customers during hotel space booking and thereby increasing or maximizing the income of the hotel. Similarly, such system will help to improve a cash less economy since it will digitally process customer data (both personal and payment data). Consequently, this paper has provided the road map to digitalizing hotel businesses in Nigeria.

## REFERENCES

- [1] Stoner, Klien and Taylor S. (1994) Understanding Information Technology Usage: A Test of Competing Models. *Information System Research* 6(2), 144-176.
- [2] Panayotova (2002) Development of Instrument to measure the perception of adopting an Information Technology innovation in Hotel Industry. *Information System Research*, 2(3), 192-222.
- [3] Alavi M, and Joachimsthaler E.A, (1992) Revisiting DSS Implementation Research: A Meta-analysis of the Literature and suggestion for researcher *MIS Quarterly*, 16(1), 95-116.
- [4] Westland J.C and Clark (2000) *Global Electronic Commerce: Theory and Case Studies*, MIT Press, Cambridge, MA.
- [5] Napier, H.A., Judd, P.J., Rivers, O.N., and Wagner, S. W. (2001), *Create A Winning E-business*, Thomson Learning, Boston, MA.
- [6] Palmer, J. (1999). "Digital newspapers explore marketing on the Internet", *Communications of the ACM*, v42, p.33-
- [7] Jiaqin Yang, Jan Flynn and Krista Anderson of Georgia College and State University (2005) *E-Business Application in the Hospitality Industry: A Case study* communications of the International Information Management Association, Volume 3 Issue 1
- [8] Glender and Mischelle (2005). *Online Hotel Reservation and Management System*. *International Journal of Computers & Technology*. Vol 10, No 1
- [9] Pe\_ers K, Tuunanen T, Gengler C.E, Rossi M, Hui W, Virtanen V and Brage J (2006) *The design science research process: A model for producing and presenting information systems research*". In *Proceedings of the first international conference on design science research in information systems and technology (DESRIST 2006)*, pp. 83-106.