Mobile-Based Service Management Online Reservation Portal (Msmorp) Towards Continuous Quality Improvement

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Abstract –This paper sought to identify the current profile of Joy and Jim Catering Services towards catering reservation and services in order to enumerate the functional and non-functional requirements of the business which will serve as basis in designing the components and features of a Mobile-based Service Management Online Reservation Portal (MSMORP) and evaluate whether the use of the online reservation system, indeed, has become essential in gearing towards the business goal of continuous quality improvement. The study utilized the descriptive method of research and the developmental type of research along with RAD (Rapid Application Development) as SDLC (System Development Life Cycle) method and the IPO (Input-Process-Output) software development framework. This methods and framework were used to describe the existing processes of the subject business, define the system features, and develop the system, respectively. Findings showed that a lot of catering services and reservation problems are encountered by the subject business and the integration of the developed system has helped it to mitigate such problems and provide service quality and the continuous use and implementation of MSMORP has helped the catering business significantly in attaining continuous quality improvement.

Keywords –. mobile-based online reservation portal, catering service management, continuous quality improvement, MSMORP, CQI

INTRODUCTION

Continuous quality improvement is an unending cycle of process and timely strategies of a business in order to gain a high degree of client satisfaction, profit and human resource fulfillment. According to the American Society for Quality, quality pertains to the properties of a service or product that support to fulfill defined or implied necessities and should be free from any deficiencies.[1] It is an innate attribute of an individual reflected in the form as an output of his talent, skill, creativity, hardwork, dedication and patience as clearly expounded by Chowdhurry (2005) that quality emanates from the combination of the power and prowess of people and process.[2] Meanwhile, ISO (International Organization for Standardization) defined quality improvement in 2015 as the activities performed by the whole organization to escalate the effectiveness of activities and processes and provide added welfare to both its customers and the organization.[3] In simple terms, quality improvement is anything which causes a beneficial change in quality performance and continual improvement is a set of activities that organizations periodically carry out in order to enhance the ability to meet customer demands and business requirements as a whole.

The utilization of a computerized system to achieve continuous quality improvement is a business model brought about by modernization and improvement in the information technology as computerized systems basically aim to deduce repetitive manual tasks, access essential business information anytime and anywhere, and reduce human resource while at the same retaining a high level of efficiency. The saved resources – energy, time, money, supplies, etc. can then be used to focus on product or service quality improvement. This has been highlighted by Berkley and Gupta (1994) in their paper.[4]

Among the industries that implement computerized systems and information technology is the hospitality industry in which the tourism industry is a field thereof. Under the tourism industry is the travel industry which has three categories: direct providers, support services, and developmental organizations. The restaurant business and catering services belong to the direct providers category. Here in the Philippines, most restaurants does not only offer ala carte dining for walk-in diners but also catering services to maximize restaurant assets and resources.[5]

The Hospitality Magazine of Australia reported in 2015 the seven technologies that are bringing positive

changes in the hospitality industry. These are customer relationship management, electronic point of sale, marketing automation, online booking systems, smart appliances and smart phones, and the social media.[6] The report emphasized that the popularity of online booking systems has increased significantly along with the substantial popularity of the business establishment using it and that a well-designed, mobile friendly website with an online booking service and with a simple interface is essential. The report has also highlighted that an important decision for many hotels and restaurants is whether to use a third-party online booking service, or to develop their own customized online booking system.

Such timely and important decision to develop a Mobile-based Service Management and Online Reservation Portal (MSMORP), a customized website with online catering booking service and mobile support, has been meaningful and momentous to Joy and Jim Catering Services, a catering sole-proprietorship business located at Barangay Sablig, Anda, Pangasinan, Philippines, owned and managed by Crisarene Joy Caabay.

The chief objective of MSMORP is to consolidate the functions of the main internal service providers of Joy and Jim Catering Services to provide quality service and uphold continuous improvement. The two internal service providers of Joy and Jim which are involved in providing catering services are the Sales and Marketing Department and the Food and Beverage Department.

Although the two internal service providers of Joy and Jim Catering Services are doing its best to perform its part in the goal to provide quality service to clients, they encounter workflow conflicts that limit their performance towards excellence. These are due to tiresome and repetitive manual jobs, schedule conflicts, and errors in purchasing food and beverage items. These cyclic problems bring a significant loss to cash assets of Joy and Jim Catering Services, goal frustrations and low job morale to employees, and dissatisfaction in the clients.

The primary role of MSMORP is to aid the Sales and Marketing Department and the Food and Beverage Department of Joy and Jim Catering Services by positioning itself as the central communication portal between the clients and J&J. It will deliver accurate, timely and essential information about target or upcoming catering commitments. Through it, important information will be received by each department of Joy and Jim in real-time and the time saved can be devoted

to focus on integral functions and enhance the delivery of quality services.

OBJECTIVES OF THE STUDY

The core objective of the study is to design and develop an effective, efficient and reliable mobile-based service management online reservation portal for Joy and Jim Catering Services.

Specifically, it sought to:

a. Identify the current profile and manual processes of Joy and Jim Catering Services towards providing quality services to its clients;

b. Enumerate the functional and non-functional requirements of the business which will serve as basis in designing the components and features of a Mobile-based Service Management Online Reservation Portal (MSMORP); and

c. Evaluate whether the use of MSMORP will be essential in gearing towards the business goal of continuous quality improvement.

MATERIALS AND METHODS

Research Design

The researchers employed the descriptive method of research in order to identify the current profile of Joy and Jim Catering Services in terms of rendering catering and reservation services and enumerate the functional and non-functional requirements of the system to be used as the features and components of MSMORP.

Ethridge (2004) defined descriptive research as an attempt to determine, describe or identify factual information on certain instances through a process of data collection or survey instruments such as questionnaire, interview, and face to face observation.[15]

In contrast, the developmental method of research is defined as the organized study of planning, crafting, developing, and assessing instructional processes, programs, and products that should comply with the criteria of internal effectiveness and constancy. Its purpose is to assess changes over an extended period of time.[16]

The researchers utilized the developmental method of research to create and develop MSMORP along with the use RAD (Rapid Application Development) as an SDLC methodology.

Research Population and Sample

The research is conducted at Joy and Jim Catering Services situated at Barangay Sablig, Anda, Pangasinan, Philippines. The research population of the study included:

• Four (4) employees of Joy and Jim Catering Services - the manager and owner, the Front Office and Food and Beverage Service Supervisors, and the I.T. Technical Staff;

• Ten (10) previous clients of Joy and Jim Catering Services prior to the implementation of MSMORP;

• One (1) external computer system evaluator; and

• Fifteen (15) recent repeat clients of Joy and Jim Catering Services during the implementation of MSMORP.

The 4 key employees of Joy and Jim Catering Services served as the focal persons who became part of the Project Team who developed MSMORP having first-hand information on the actual day-to-day processes of catering reservation and services. The 10 previous clients of Joy and Jim Catering Services served as resource persons whose inputs during the final User Acceptance Test (UAT) became very essential to the acceptability of the system. The role of an external system evaluator offered relevant criticism and details on the acceptability of the system's entirety. Finally, the 15 most recent repeat clients of Joy and Jim Catering Services functioned as resource persons whose experiences and observations were vital in comparing the previous manual processes of Joy and Jim Catering Services to the current one with the integration of MSMORP.

Instrument and Data Collection

The researchers used multiple instruments and techniques to achieve the stated objectives through employing questionnaires, personal interviews, observation, and analysis of business forms/documents to develop MSMORP and complete the study.

Observation

The researchers used the observation method in obtaining data relevant to the study. According to Dewalt (2002), observation is the process of enabling researchers to learn about the activities of people under study in their natural setting through observation and participation in the said activities.[17]

In this method, the researchers joined the four employees of Joy and Jim Catering Services and keenly observed the current processes conducted by the Front Office and Food and Beverage Departments. The observation was matched with face to face interview. The major focus of the observation is set on learning or acquiring information how catering reservations are booked and provided with actual services. The flow of data and information involved in performing the manual processes were fully analyzed and noted accordingly.

The researchers were able to identify the strategies, problems, constraints, risks and possible conflicts involved in performing the manual processes of Joy and Jim Catering Services in terms of catering reservation and provision of services.

Interview

Another method employed by the researchers in collecting data is the interview method. An interview method is a prepared set of relevant questions asked to the stakeholders which provides in depth explanation.[18]

In this method, the researchers prepared interview script which were personally asked to the four personnel of Joy and Jim Catering Services in order to identify the functional and non-functional requirements that MSMORP will embody. Relevant answers were jotted down while unclear answers were fully clarified and discussed with the respondents.

The researchers also prepared sets of survey questionnaires which were used and floated as follows:

- ***During the Initial User Acceptance Test -*** the 4 personnel of Joy and Jim Catering Services were provided individual questionnaires to assess a particular back-end system module assigned to their department or related to their job responsibilities.

- ***During the Final User Acceptance Test –*** the 4 personnel of Joy and Jim Catering Services were provided again with individual questionnaires to assess a particular back-end system module assigned to their department or related to their job responsibilities. The 10 previous customers of Joy and Jim Catering Services were also given survey questionnaires to assess the final MSMORP developed as to its front-end functionalities. One seasoned software developer and I.T. consultant was also invited to assess the system and was also given a set of computer system evaluation form to fully evaluate MSMORP to its totality and in terms of the following aspects: performance, information, economic, control and security, efficiency, and service.

- *During the implementation of MSMORP –* a month after the start of the implementation of MSMORP and its integration with the business process of Joy and Jim Catering Services, 15 most recent repeat clients of Joy and Jim Catering Services were surveyed and floated with a set of survey questionnaires to validate the degree of quality and the presence of continuous quality improvement in terms of reservation and catering services rendered by Joy and Jim Catering Services along with the integration of MSMORP. The researchers utilized the relative frequency to produce a frequency distribution table of the survey results of the 15 most recent repeat clients. The formula of the relative frequency is:

$$F_R = \frac{f}{\sum F} \; X \; 100\%$$

where:

F_R = Relative Frequency rate in %
f = Frequency result
$\sum F$ = Sum of frequencies

The client-respondents were briefed first to the purpose of the survey and were assured that their answers will be held and kept confidential by the personnel of Joy and Jim Catering Services and by the researchers. Questions raised by respondents while answering the survey questionnaires were immediately entertained and made sure that vague matters were clarified prior to answering.

The answers of the respondents were tabulated and the results incorporated in the design and development of MSMORP. font size, uppercase bold, and centered. Six spaces indentation for first statement. Leave one space for next paragraph. Materials include all types of materials generated and utilized in the scope of scholarly research. Methods vary by the sources from which information is obtained, how that information is sampled, and the types of instruments that are used in data collection. Methods also vary by whether they collect qualitative data, quantitative data or both.

Analysis of Documents

The researchers also employed document analysis as a tool for data collection. Document analysis is the process of gathering and collating documents and other forms associated to the functions of the business, after which, the collated documents are studied to identify the subjects and flow of the actual business operations. Documents include written plans and programs.[19]

The researchers collected and analyzed business forms which are related to the catering reservation and services. Documents include catering reservation form, catering agreement, catering reservation calendar, catering approval form, catering job order, catering cancellation form, catering rescheduling form, catering amendment form, catering addendum form, official receipt, and other related documents. These served as guidelines for the developer in identifying the information that was used in every phase of the business process.

RESULTS AND DISCUSSION

After the observation and interview with the 4 focal persons of Joy and Jim Catering Services, the current profile and manual processes of the business with regards to catering reservations and services were identified. The booking reservation starts with the client inquiring for catering packages, availability of schedule and costs. Majority of new client inquiries are made via personal inquiry by walk-in clients and the rest are via text messages or phone-in calls as referred by previous clients or after reading printed advertisements. Meanwhile, majority of repeat client inquiries are made by phone-in calls since these repeat clients already know the catering business' contact numbers.

The next manual process in booking a catering reservation at Joy and Jim Catering Services is signing of contract and making initial payment which can be done by the client by personally going to the office of Joy and Jim or the owner going to the place of the client. Once the contract is signed, down payment has been made and the list of client requirements are settled, the catering reservation is booked and approved.

The above description of the manual catering reservation process of Joy and Jim Catering Services presents a number of drawbacks, constraints and conflicts such as low turnout of booked events, costly booking process when the owner or any representative of the business will have to go to the place of the client for contract signing, slow booking process when the client will have to travel to the office of the catering business, misplaced catering requests and contracts, high possibility of double booking, and mistakes in catering

cost calculations. These problems were noted by the researchers and find measures to counteract the problems and were incorporated in the planning and designing phase of MSMORP.

Aside from identifying the current profile and manual processes of Joy and Jim Catering Services after the observation and interview with its 4 focal persons, the functional and non-functional requirements of MSMORP are also determined by the researchers.

The functional requirements of MSMORP are as follows:

• It must support online reservation of catering services.

• It must be able to showcase the company's catering packages, catering menus, gallery of photos, and schedule of catering services.

• It must display a notification whether a client has or has not successfully created a catering service request.

• It must support updating of the schedule of catering services/events after a successful catering service request was entered by a client.

• It must support creation, modification, and deletion of catering packages, catering menus, gallery photos, company's contact details, and system user accounts.

• It must show the System Dashboard only to those system users with Admin access level.

• It must support system users with Admin access level to view catering service request for approval and allow this users to be able to approve such requests if there is no schedule conflict.

The following are the non-functional requirements of MSMORP:

• The system must ensure that username and passwords of system users be stored and accessed in a secure way.

• The system must be able to handle multiple simultaneous online transactions.

• The system must provide updated information to end users 24/7.

• The system should support most commonly used browsers (Google Chrome, Microsoft Internet Explorer, Mozilla Firefox, Safari, etc.).

The above requirements were incorporated in the development of MSMORP.

After careful planning, designing, coding and testing, and after taking into considerations the strategies and measures to counter the problems encountered in the manual processes of Joy and Jim Catering Services as to

its catering reservation and services, MSMORP was developed and deployed. It is consisted of two main modules: the front-end module which displays web pages for online clients such as the catering menu, catering package, reservation, events, gallery, and contact us pages; and the back-end module for administrative control and management of catering reservation which include pages for catering menu, catering package, catering orders, clients, events, and user accounts.

Two User Acceptance Tests (UAT) were conducted, the initial UAT and the final UAT. The conduct of the initial UAT resulted to the identification of 3 system part faults which require code debugging and 5 system parts for modification which require GUI changes and control addition. Faulty codes are corrected and GUI are redesigned to make sure that MSMORP complies with the system requirements.

Based on the results of the questionnaires floated to the respondents who participated in the final UAT, no system part of MSMORP has been found faulty nor require GUI modification.

Table 1 presents the rating given by the owner of Joy and Jim Catering Services and the external computer system evaluator after evaluating the MSMORP in its totality and in its performance, information, economic, control and security, efficiency, and service aspects. It shows that MSMORP has passed the formal acceptability test with an average rating of 93.17% given by the owner of Joy and Jim Catering Services herself and an average rating of 85.33% rated by the external system evaluator. A 89.25% rating as average of the combined ratings provided by the two evaluators confirms acceptability test passing rate of MSMORP.

Table 1. Final system evaluation of MSMORP in terms of control and security, economic, efficiency, information, performance, and service aspects.

ASPECTS	RATE GIVEN		Recommended for Implementation
	Project Sponsor	External System Evaluator	
Control & Security	89%	82%	YES
Economic	97%	87%	YES
Efficiency	93%	89%	YES
Information	92%	86%	YES
Performance	92%	83%	YES
Service	96%	85%	YES

Average	93.17%	85.33%	YES
Overall Average		89.25%	YES

As to the degree of quality rendered by Joy and Jim Catering Services in its catering reservation functions during the implementation of MSMORP,

Table 2 shows that majority or 9 out of 15 (60%) of the most recent repeat client-respondents perceived that there is an excellent degree of quality in the current catering booking process of Joy and Jim as compared to its previous manual reservation process. Further, majority or 8 out of 15 (53.33%) of the said repeat client-respondents perceived that there is very high presence of continuous quality improvement in the integration and implementation of MSMORP with the catering reservation functions of Joy and Jim Catering Services.

Degree of Quality			Existence of CQI		
Perceived Assessment	Count	%	Perceived Assessment	Count	%
Excellent	9	60.00%	Very High	8	53.33%
Very Good	2	13.33%	High	4	26.67%
Good	3	20.00%	Fair	1	6.67%
Fair	1	6.67%	Low	2	13.33%
Poor	0	0.00%	None	0	0.00%
Total	15	100.00%	Total	15	100.00%

Table 2. Frequency table of the degree of quality and existence of continuous quality improvement during the integration of MSMORP as perceived by repeat client-respondents.

CONCLUSION AND RECOMMENDATION

Based on the findings presented about the catering reservation process of Joy and Jim Catering Services, the following conclusions are drawn from this study:

• The current manual catering reservation process of Joy and Jim Catering Services is identified and presents good booking strategies and number of drawbacks, constraints and conflicts;

• With the existing manual catering reservation process identified, the functional and non-functional requirements of MSMORP were determined and were incorporated in the creation and development of MSMORP;

• The implementation and integration of MSMORP with other business functions of Joy and Jim Catering Services have provided an excellent degree of quality in terms of its catering reservation process and the presence of continuous quality improvement is very high.

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