Design and Development of Ticket Reservation Information System in Travel Business

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Abstract. This research aims to analyze information system in travel business ticket reservation. Method used in this research was observation and interview to collect the data. This research has indicated it can minimize the occurrence of data processing errors because the system formed from add, edit, and delete existing data and incoming data.

1. Introduction
Patriot-Baltes said that in the current digital marketing strategy is very important because the company can give significant benefits with a low cost [1]. The website is a social networking site that can take down a variety of information from every act committed by members or by explicitly, so that each user can connect, and the best tools to build relationships with customers is social media [2-3]. In the building, websites should pay attention to the aesthetics of web design for experiential interfaces because it can make the community choose to visit a place that promoted via the web [4]. While analysing web visitors can use models of behaviour, it began production of website visitors who access the website, and include the marketing beacon. So that visitors will be redirected to the server service provider marketing [5] as well as by making use of the web, the company can conduct Web Analytics to show digital marketing activities that benefit their businesses [6].

Research conducted by Zhang et all information about the effects of social interaction from friends on the daily passenger route choice decision found that the level of social interaction that occurs in larger online travel community do not always the results lead to a better route choice for individuals or the whole system [7], while the research conducted by Xiong et all against travelling behaviour found that the act of travelling is strongly influenced by the information obtained. Therefore required the presence of an agent-based approach to model the action of travel and information provision strategies [8]. So, according to Choi et all to improve the credibility of information to tourists, then it should be built information system that is filled with visual cues [9]. The importance of information systems that can understand tourists, supported by research conducted by Zhou and He, who found that markets travel booked online can improve the operating performance of the tourism industry in an area [10].

Based on previous studies related to the importance of information systems to improve service to consumers, so that it can help to increase the operating performance of the tourism industry. Then this
research is conducted to the system can analyse the information on the ticket booking travel and build information systems that can be understood by consumers. Moreover, can indicate or minimise the occurrence of errors due to data processing systems formed from adding, editing, and deleting existing data and data entry.

2. Method
Data collection methods used in this study using primary data and secondary data sources. Primary data in this study obtained from an employee in one of PT. Tour & Shuttle in Bandung, obtained through direct observation to the Office of one of PT. Tour & Shuttle in Bandung, on the system before the tickets, took place at the PT & Shuttle Tour in Bandung and interviews conducted by finding out who interviewed can provide relevant data so that the writer knows the system that runs on the tour PT. & Shuttle in Bandung. Secondary data obtained in the registration form, preliminary report of pilgrims to Mecca, organisational structure, company history, as well as other documents such as receipts and payment of pamphlets made as a media campaign by PT & Tour Space Shuttle in Bandung through a structured approach, complex problems within an organisation can be solved. The results of the system will be developed to make it easier, flexible, more satisfying the users have the right documentation, on time, by budget development costs can improve productivity and quality will be better.

3. Result and Discussion

3.1. Analysis System running

3.1.1. Document Analysis. Document analysis to analyses or study the documents that exist in a system, particularly of the information systems management report to the ticket and subsequently used as a reference at the stage of design or development systems. Here is a document used in the ticket management system, report data, booking clerk, and salary data.

- Document name: to explain the name of the document.
- Function: To explain the usefulness of the information used.
- Source: the origin of the document.
- Distribution: Describes to what process or to what part the information is flowing.
- Duplicate: the number of copies of the document.
- Form: a document that is used in the form.

The following documents are used in the Information System:

Ticket Data
- Document Name: Ticket.
- Item: the name of the customer, Purpose, dates, Hours, types of passenger, seat, Driver, Police Numbers, and prices.
- Flow: From Buyer to Administration.
- Duplicate: 1.
- Function: To be made a ticket.
- Period: Every customer has booked a ticket to PT. KRAKA Tour & Shuttle DU Bandung.

Reservation Report Data
- Document Name: Reservation Report.
- Item: Date, Purpose, Type, Passenger Seat, Driver, Police Numbers, Prices.
- Flow: from Administration to the Manager.
Duplicate: 1.
Function: to know the total income per period.
Period: every month.

3.1.2. The Analysis Procedure. Analysis of the flow chart to describe a Procedure document (Document Flow Folder). Document flow chart is intended to find out the flow of documents used in a system that is running:

Booking & Ticket Report:
- The prospective passengers to provide passenger data and purpose to the Administration section.
- Administrative records data of passengers provided by the passenger.
- After the last passenger data records Administration noted the passenger ticket.
- The administration of giving tickets to passengers.
- Records archived that is stored in the Administration section.
- Chief reporting for booking tickets.
- Head of send archives to the Manager.

A. Flow Map
Flow map is a picture of how the procedure is being run. In this flow map illustrates how the processes that are running in PT. Tour & Shuttle in Bandung travel (Note figure 1).

![Flow Map running system](image)

**Figure 1.** Flow Map running system.

Description: DTP1 is the Passenger Ticket Data Archive.
B. Context Diagram
This structural approach to describe the system in general or overall. In the context diagram that will be made to produce the necessary resources and objectives to be generated (Note figure 2).

![System Context Diagram](image)

**Figure 2.** System Context diagram are running.

C. DFD (Data Flow Diagram)
DFD (Data Flow Diagram) is a flow diagram presented by particular symbols. With the DFD then writing a program would be more comfortable in practice because it uses symbols that are generally the standard set in the writing of the design. DFD writing aims to describe the current system (Note Figure 3).

![Data Flow Diagram](image)

**Figure 3.** DFD Level 1 of the system that is running.
D. Data Dictionary
The data dictionary is a catalog of facts about data and information needs of a complete information system. Further details about the data structure of a data flow in DFD in more detail can be seen in the data dictionary.

- Data Flow Name: Passenger Data.
  Data Flow: Passenger.
  Data Structure: No Series, Transaction Date, Hour of Transaction, Name, Departure Date, Departure Time, Destination, Passenger Type, Seat, Departure, No Police, Price.

- Data Flow Name: Passenger Ticket.
  Data Flow: Administration, Section Head
  Data Structure: No Series, Name, Departure Date, Departure Hour, Destination, Passenger Type, Seat, Departure, No Police, Price.

- Data Flow Name: Financial Statement.
  Data Flow: Head of Section.
  Data Structure: No Series, Transaction Date, Price.

3.1.3. Proposed System Design. Information Systems Ticket management and ticket reservation reports proposed have several advantages and differences from the current system. The proposed system has been computerized, easier to use, data integrity maintained. It will not take a long time in processing ticket data because it has provided printing reports and other facilities that will facilitate the user in various things in running the company's business processes. Such as changing data drivers, ticket prices, destinations and also this program has different permissions between the user (administration) and admin (the company's executives).

3.1.4. The proposed procedure. One result of the analysis procedure is the depiction of a document flowchart (Document Flow Map). The document flowchart is intended to find out the flow of documents used in the running system, namely:

Booking & Ticket Report:
- The Passenger Candidate provides passenger and destination data to the administration department.
- Administration inputs passenger data that has been given by passengers as well as making financial reports.
- Administration prints passenger tickets.
- Passengers receive tickets from the Administration.
- Administration prints financial statements.
- The Section Chief receives the financial statements from the Administration.
- The section chief sends the archive to the Manager.

A. Flow Map
To build and design information systems on ticket booking, then first create a Flow Map that will be proposed to the company PT. Tour & Shuttle in Bandung (Notice Figure 4).
Figure 4. Flow Folder System is proposed.

Description: LK 1 is Financial Report Archive

B. Context Diagram
The context diagram proposed on the development and design of information systems on ticket reservations as follows (Note Figure 5).
**Figure 5.** System Context diagram is proposed.

C. DFD (Data Flow Diagram)
The following Data Flow Diagram to be proposed to the company PT. Tour & Shuttle in Bandung (Note Figure 6).

**Figure 6.** DFD Level 1 of the proposed System.

D. Data Dictionary
The data dictionary is a catalog of facts about data and information needs of a complete information system. Further details about the data structure of a data flow in DFD in more detail can be seen in the data dictionary.
• Data Flow Name: Passenger Data.
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• Data Flow Name: Passenger Ticket.
  Data Flow: Administration, Section Head
  Data Structure: No Series, Name, Departure Date, Departure Hour, Destination, Passenger Type, Seat, Departure, No Police, Price.

• Data Flow Name: Financial Statement.
  Data Flow: Head of Section.
  Data Structure: No Series, Transaction Date, Price.

3.1.5. Database Design

A. Normalization
Normalization provides a helpful guide for developers to prevent the creation of less flexible table structures or reduce inefficiency.

a. First Normalization Form / 1NF.
   * No Series, Transaction Date, Hour of Transaction, Name, Departure Date, Departure Time, Destination, Passenger Type, Seat, Driver Code, Departure, No Police, Price.

b. Second Normalization Form / 2NF.
   * ID, Name, Password, Access Right.
   * Driver Code, Name, No HP.
   * Passenger Type, Price.
   * Departure Code, Departure Name.
   * Car, No Police.
   * Destination Code, Destination Name, Price.

c. Third Normalization Form / 3NF.
   Transaction Date, ** No Series, Price.
   ** No Series, Transaction Date, Name, Departure Date, Destination, Passenger Type.

B. Table Relation
Figure relation describes the relationship between the tables contained in the travel database, which on the table there is a significant field (primary key), and there is a guest key (foreign key). These two keys are used to connect between tables (Note Figure 7).
Figure 7. Relationship Table the proposed System.

C. ERD (Entity Relation Diagram)
The following Entity Relationship Diagram that will be proposed to the company PT Tour & Shuttle in Bandung (Note Figure 8).
After creating the Entity Relationship Diagram to be proposed, then next create a File Structure consisting of account, driver, ticket price, departure, car or vehicle, transaction, income transaction, passenger transaction, and destination.

D. Codification
If a file structure has been created, next is to create a Codification. The design of this coding system is made to identify an object briefly, in the presence of this coding system is expected to clarify the data, the code can be formed from a collection of letters, numbers and special characters.

E. Interface Design
Interface design is made to simplify the making of the program Designed consists of the menu structure, input design, and output design.

F. Menu Structure
Menu structure is a common form of program design to facilitate users in running the program so that when running a computer program, users do not have difficulty in selecting the desired menus. In this
design made a menu that can integrate all data in a system and accompanied by the current instruction (Note Figure 9).

![Diagram of Menu Structure]

**Figure 9.** The proposed Menu Structure

3.1.6. **Input Design**

A. **Transaction Input**

After creating the menu structure of the information system built, then the next is to make input from system transactions to be done (Note Figure 10).
B. Account Input
Then create input account to be done by consumers, especially for new customers who will use travel services (Note Figure 11).
C. Input Driver
The design of driver input is for the driver who will carry the travel car, making it more accessible in arranging the travel departure schedule (Note Figure 12).

![Figure 12. The Design of the Input Driver.](image)

D. Car Input
The design of car input is done to know the status of the vehicle and the completeness of vehicle data that will be used by PT. Tour & Shuttle in Bandung, making it easier for the service providers to accommodate the vehicles they own, and the consumer to know the license plate of the car they will use (Note Figure 13).

![Figure 13. Car Input Design.](image)
E. Input Departure
Input departure aims to perform data collection of the scheduled departure scheduled to be conducted by consumers so that the PT. Tour & Shuttle in Bandung can arrange vehicle management and time to be implemented (Note Figure 14).

![Figure 14. The Design of the Input a Departure.](image)

F. Passenger Type Input
Passenger type input is required to determine the health status and priority of passengers who will use the services of PT. Tour & Shuttle in Bandung so that the travel party can provide the necessary needs and particular service system for passengers with special needs (Note Figure 15).

![Figure 15. Design of the Input Type of Passenger.](image)
G. Input destination
Input destination is needed when will design information systems services PT. Tour & Shuttle in Bandung, with the input menu of the destination, will facilitate the data collection of travel schedules and travel destinations that will be done every customer services PT. Tour & Shuttle in Bandung, so travels party can improve the quality of service system (Note Figure 16).

![Figure 16. The Design of the Destination Input](image)

3.1.7. Program / Product Implementation. This stage is the stage of the application system that has been made can be operated. At this stage will explain about the implementation of hardware, software implementation, database implementation, implementation of the interface, and implementation of the installation and how to use it.

- Software Implementation.
- Hardware Implementation.
- Database Implementation (SQL Syntax).
- Account Table.
- Driver Table.
- Table Price Tab.
- Departure Table.
- Car Table.
- Transaction Table.
- Transaction Payment Table.
- Passenger Transaction Table.
- Destination Table.

4. Conclusions
With the Ticket Management Information System and Reports at PT. & Shuttle in Bandung able to improve the quality of data processing so that the delivery of information can be received quickly and run smoothly. After testing the system Information that has been made this can minimize the occurrence of data processing errors because the system formed consists of add, edit and deleted existing data and
incoming data. After testing the Information System has been made this can minimize the occurrence of data processing errors because the system formed consists of add, edit and deleted existing data and incoming data.

Reference
[1] P Baltes L 2016 Inbound Marketing the most important digital marketing strategy Bulletin of the Transilvania University of Brasov Economic Sciences. Series V 9(2) pp. 61.
[2] Clemes M D, Gan C, and Zhang J 2014 An empirical analysis of online shopping adoption in Beijing, China Journal of Retailing and Consumer Services 21(3) pp. 364-37
[3] De Vries L, Gensler S, and Leeflang P S 2012 Popularity of brand posts on brand fan pages: An investigation of the effects of social media marketing Journal of interactive marketing 26(2) pp. 83-91
[4] Pallud J, and Straub D W 2014 Effective website design for experience-influenced environments: The case of high culture museums Information & Management 51(3) pp. 359-373
[5] Palan V, Killen B F, Mui L, McMichael N B, Ledo F, and Owen, P 2015 U.S. Patent Application No. 14/479,022
[6] Järvinen, J, and Karjaluoto H 2015 The use of Web analytics for digital marketing performance measurement Industrial Marketing Management 50 pp. 117-127
[7] Zhang C, Liu T L, Huang H J, and Chen J 2018 A cumulative prospect theory approach to commuters’ day-to-day route-choice modeling with friends’ travel information Transportation Research Part C: Emerging Technologies 86 pp. 527-548
[8] Xiong, C, Zhu, Z, Chen, X, & Zhang, L 2018 Optimal travel information provision strategies: an agent-based approach under uncertainty Transportmetrica B: Transport Dynamics 6(2), 129-150
[9] Choi, Y, Hickerson, B, & Kerstetter, D 2018 Understanding the Sources of Online Travel Information Journal of Travel Research, 57(1), 116-128
[10] Zou G, & He J 2017 Research on low price competition and the vertical restraint of online travel business and the government regulation. Tourism Tribune 32(3) pp.11-19