Implementation of Smart Travel System For Support Travel And Accommodation Industry

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Abstract. Smart Travel System that called To-Tour is an important component in Travelling and Accommodation Services. There are variety and different organization for support the integration mechanism. We proposed the concept of implementation about travel reservation solution that called To-Tour for use by travellers using on Service Oriented Analysis and Design Approach, specifically in Service Oriented Architecture (SOA). To-Tour is a Tour Travel Agency offering any trips from different vendor, and provide any variety features such as hotel, restaurant, car & motorcycle rent, trip destination, tour package, tour guide, merchandise, train, flight and the other feature in one platform application. Service Oriented Analysis and Design can combine any entities from different providers that can be integrated together to provide Smart Travel System services for travellers. To-Tour system is also designed to develop the tourism industries in Indonesia could appealing to any different travels segments. To-Tour is a new way to reservation any services for travel on one application. Smart Travel System is solution in Indonesia, the travellers can search various travels or other services in our application.

1. Introduction

People were actually getting confused about key differences between Service Oriented and Object Oriented. In fact, most of SOA development might have similarities methodology with software development. However, the quality of service that will be delivered possibly does not fully required nor support the services itself if SOA develop in software development perspective. Service Oriented Architecture (SOA) is one of service technology provide integrity, compatibility, and support the smallest unit of business functionalities. Most of literature research, currently identified at least four methodologies for SOA development which is mostly under discussion. It concludes that basically SOA methodology itself is in debate and need to discuss in-depth [1]. Furthermore, each methodology basically had been supporting business process either in bottom-up, top-down, and melt-in the-middle. It would be depends on requirement based on company needs [2]. SOADL methodology, when all phases implemented, will provide independent cross multi-platform services and dynamic toward any other services [3]. In other hand, when SOADL work together with a software development approach, besides providing set of service composition, it will deliver client application based on process-oriented [4]. Means, the service will be more flexible, even the business process must be changed both in codes or its processes. This flexibilities of business process toward services well known as orchestration—which is basically part of business logic for SOA abstraction [2]. SOADL methodology was introduced by [5] as an alternative IT solution which not only support IT infrastructure, but also can be worked with a set of business functionality. Indonesia has many beautiful destination for travel. Bali island might be is the most famous one. Everyone knows about Bali, both Indonesian and International citizens. With the success of Bali has achieved, Indonesian government wanted to make another potential tourism places in Indonesia. Indonesian government has decided to make 10 main tourist destinations in Indonesia beside Bali, the Authority Agency was
formed by President Regulation no 49 in 2016 [6]. In every tourism places there will be various options of tourism providers. Based on data from [7] there are 3,038 tour providers in Indonesia by 2011. Most of the tour providers are standing alone and they are located in remote areas. With the various options of tourism providers who stand-alone obviously would make tourists or tour and travel services users confused to find and compare the packages that suit their needs. Travelers need to open different kind websites or mobile apps if they need transportation, accommodation, tour packages, tour guide services and other features it is indeed would make tourists uncomfortable. Another problem would be the payment issues. The tour and transportation providers use traditional payment service and sometimes users afraid to make transaction. That is why we propose Smart Travel System that integrates many entities in one application based on Service Oriented Architecture (SOA). It is called as To-Tour.

2. Related Works

According to [3], Service Oriented Architecture (SOA) is a service-oriented approach in the system development. By definition, SOA is different with web services, which means that SOA does not equal with web services. SOA approach can overcome the dynamic and fast-changing business environment with its flexibility. According to [8], Service Oriented Architecture (SOA) is well known as Service Orientation which is automating business logic as a distributed system. The system Architecture for complex dynamic environment has been proposed by [9]. Besides that, the SOA implementation for interconnected modern higher education also proposed by [10].

3. Research Method

In this study, we use literature review for gathering and capturing the similarity, phenomenon, and trend issues for the topics. Besides that, we are doing some interview with some of users and experts in the domain area. The first step is Data Observation; The tourism ministry as an institution that manages tourism in Indonesia has valid data relating to tourism in Indonesia. According to data released by the Ministry of Tourism: (a).Number of domestic tourists in 2017, there are 270,820,000 trips, (b).The number of foreign tourists entering Indonesia in 2017 total 14.039.799 grow up 21.88% from the previous year, (c). The number of tour providers in Indonesia in 2011 was 3,038. The 2nd step is Interview; In this study researchers conducted several observations and interviews to tour and travel service users to be able to be questioned or informed about the use of tours and travel online. As well as whether there is a problem as long as they use multiple platforms from tour and travel service providers as well as what deficiencies and suggestions or enter what should be given. First, when observing several users. There are several obstacles or problems that exist in the use of tours and online travel. Many argue that the use of web tours and travel is incomplete, many people who need tour guide services to help provide information about the destination, many travellers who need a vehicle in the city where they are on vacation, for travellers who are busy with their work many of them need information about restaurants nearby. The third step is Summary Problem, such as requires tour guide service features, requires motorbike / car rental features and requires a search nearby. The last step is Create a system that can provide convenience and meet the needs of travellers. Sell airline tickets, train tickets and hotel voucher. Add some additional features in the form of tour guide services, motorbike / car rental features, search nearby and also add features that provide information regarding favourite places that are often visited such as restaurants, souvenir store, and tourist attractions. The use smart travel systems with SOA that can connect various types of data or information that can later be accessed from various systems. As in the case of using a service layer that will be able to display various data in it.
4. Results and Discussion

This section explains about the results and discussion the concept of implementation about travel reservation solution that called To-Tour. To-Tour is an enhancement and improvement from our previous research that has been done, such as (1) Proposed SOA Reference architecture, (2) Enterprise Service Bus (ESB) travelling system, (3) Smart Travel system, and also (4) Smart travel system integration. Regarding to it, in this study, the implementation To-Tour is beginning from creating business model canvas. The detail about business model canvas for To-Tour implementation is described below:

To-tour mapping the model business to 9 parts according to the design of the canvas model business. by making the To-tour canvas model business can sharpen focus and make clarity about the proposed business module. This is design of the To-tour canvas business model:

![Figure 1: To-Tour Business Canvas Model](image)

The next section is related with users workflow in To-Tour application, and will described in Figure 2 below:
Figure 2. Users Workflow in To-Tour

Based on the figure above, it is the simple workflow of To-Tour application. Following is the description of the work system of To-Tour app:

1. To begin using To-Tour, user must starts with login for existing user or registration for new user. For registration, personal data of new user will be stored in To-Tour database and for login; the system will check and verify the data to the database. Once succeed, system will automatically direct user to the homepage.

2. Homepage is one of the main menu in To-Tour app. The other menus are Near Me and Profile. In the homepage, the user will be presented with reservation or booking feature, promotion and suggestion. In the reservation or booking, user could find any services that suit their need, such as hotel reservation, flight tickets, tour packages, entertainment tickets, car and motorbike rentals, merchandise, train tickets and other services from different vendors. User could compare services by using one application. Once they choose any services that suit their need, they must fill their personal data then do the payment. These will be explained later on. In promotion and suggestion, user will be presented about promotion and suggestion in a place that the user often visit to. For instance, user who likes to travel to Central Java will be presented everything about Central Java, such as hotel promotion, restaurant promotion, entertainment places around Central Java, etc. The same as reservation or booking, user must choose any promotions and suggestions that suit their need. They must fill their personal data then do the payment afterwards.

3. Meanwhile in Near Me menu, To-Tour’s system will give user information about nearby restaurants, shopping malls, entertainment places, etc. So user could explore more about nearby places by using Near Me feature. This is possible because of the Google Nearby API. In Profile menu, user could change their personal data if needed and also could check their transaction, both on-going and done transaction.

4. This part explains about completing transaction. User must fill their personal data before the payment. For existing user, the personal data will automatically filled by system. For new user, they must fill it first and the data will be stored in database once finished. In the payment page, user also can choose various payment method that suit their need, such as pay with debit card, credit card, credit card with installment and cash on delivery (COD) (applies only for merchandise buying). It is possible because of the integrated payment gateway system with bank. Once the payment success, To-Tour will
send the invoice and the booking confirmation to the user via e-mail. Every transaction will be stored in the database.

Using a smart travel system in Indonesia can help economic development and more importantly can help the development of tourism and travel in Indonesia. As we know, in this time the development of existing travel has a major contribution to the economy in Indonesia. For travellers, smart travel system can be answer to some problems that exist in the tour and travel industry in Indonesia. Because, the travellers don’t need to replace some websites to find features available on the platform, so just use one platform. Such as travel searches, hotel providers, transportation (airlines, trains, buses and others), tour guides, souvenirs and merchandise, car and motorcycle rentals, and other features in To-Tour. This Travel Agency can customize for travel with various available features. For payment on this system use a payment gateway so it is easy to use. Smart Travel System (STS) also serves as a support in big city that is supported by nearby support. Finders location and maps are very important for many tourists in Indonesia. GPS (global positioning system) becomes the most important or major in the To-Tour application and in the form of systems related to location. In To-Tour, global positioning system is used to search for destinations, current locations, restaurants, hotels, car and motorcycle rentals, souvenirs and merchandise places, locations of train, and also the most visited destinations. Overall in integration of smart travel system technology (STS) is based on integrated service oriented architecture (SOA) and the data sources that can be made into web services to serve the needs of tourists. The use of this web service can associate from two or more existing data sources (content or services) so that they can be used on a variety of devices such as smart phones, tablets, desktops, and other smart devices for the use of services in the To-Tour Application. The Google Place (API) programmer application interface is a service by Google that returns information about the location of the nearest radius of the area. Nearby use of API is the most important thing for tourists because tourists will be able to determine the direct from the current location to the destination with time and how far the distance will be taken to reach the location, such as want to reach the destination, hotel or existing transportation location. The nearby API will also help find the location closest to current location tourists. So travellers can specify the desired destination with a variety of options available. Tourists can also save a history of locations or destinations that have been visited. Nearby API facilitate the search for these systems provide a variety of options available path destination. The destination location can be designed to be a list of destinations for the next visit, such as after tourists visit the destination and want to go directly.

![Figure 3. To-Tour Application Package](image-url)
5. Conclusion

To-Tour is enhancement and improvement from our previous research that has been done, such as (1) Proposed SOA Reference architecture, (2) Enterprise Service Bus (ESB) travelling system, (3) Smart Travel system, and also (4) Smart travel system integration. To-Tour application can be answer to some problems that exist in the tour and travel industry in Indonesia. The travellers don't need to replace some websites to find features available on the platform, so just use one platform. Such as travel searches, hotel providers, transportation (airlines, trains, buses and others), tour guides, souvenirs and merchandise, car and motorcycle rentals, and other features in To-Tour. This Travel Agency can customize for travel with various available features.

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