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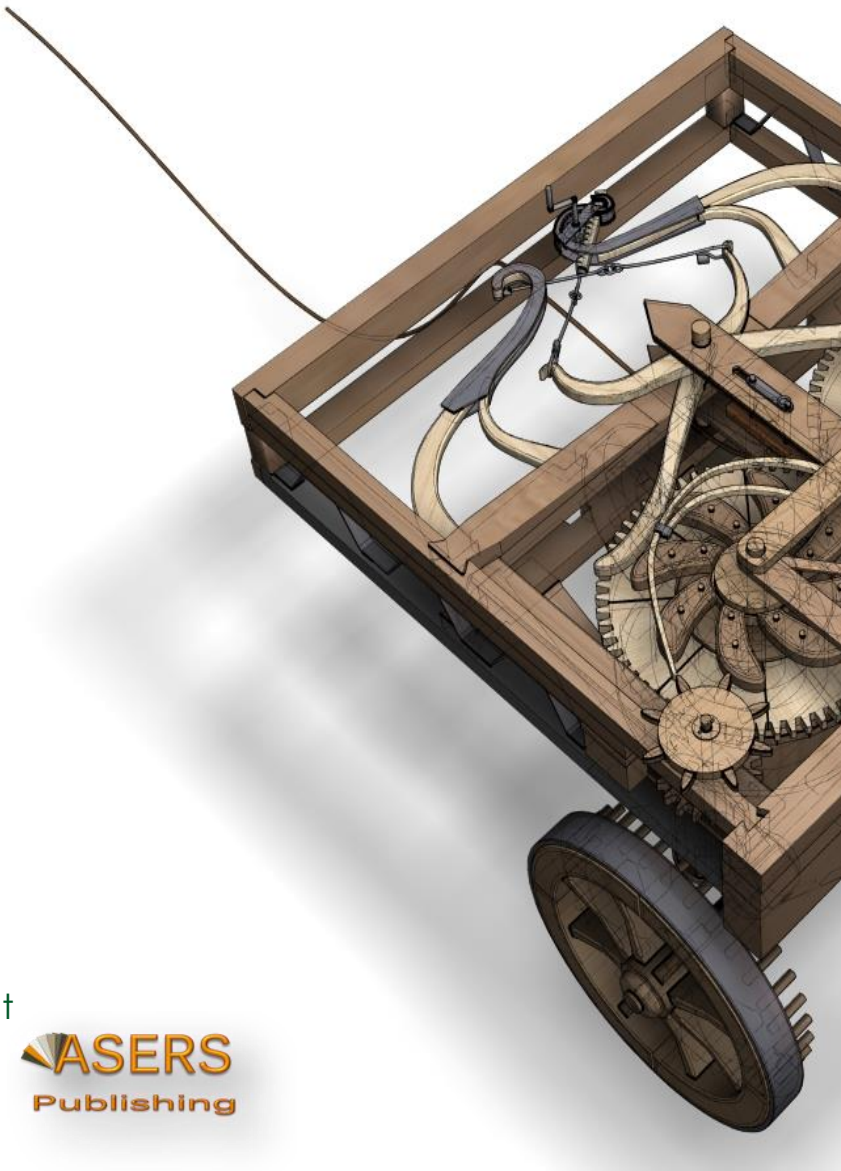

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Analysis of Satisfaction Factor for Development Recommendation Tourism Web System

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Abstract:

Indoensia.travel as one tourism web which is managed Indonesia government should give a satisfaction for users to provide useful information and travel referenced in Indonesia. However, many users have expressed dissatisfaction such as system has not provided sightseeing recommendations in accordance with the wishes and needs of users.

Therefore, this paper aims to conduct the gap analysis based on some dimensions in Indonesia.travel. Analyzed is performed between user expectation and the existing web system to obtain the gap point. ISO 9126 which is issued by the International Organization for Standardization (ISO) and International Electrotechnical Commission (IEC) is used for standard to obtain the gap point. The gap point on functionality, usability and efficiency dimension are used to measure the gap. This significant gap obtained is used to develop the recommendation system in order to enhance the satisfaction user.

Keywords: indoensia.travel, ISO, tourism, analysis gap, recommendation.

JEL Classification: L86, Z32.

1. Introduction

Internet and World Wide Web help providing a lot of much information in the field of tourism because tourism has attractive and sensual experience for tourists (Sharda 2009). However it is difficult to find travel information in accordance with the wishes of its users. Zinz AH *et al.* (2004) proposes a system of recommendation as a significant tool for the tourism industry or trips to offer and recommend places to the tourists who travel to their liking.

Understanding the behaviour of tourists such as satisfaction has been an important topic of research for decades in tourism studies in Indonesia (Hendijani 2015). Indonesia, which has a variety of unique culture and tourism, has always been the charm and attraction for tourists, both foreign tourists (tourists) and domestic tourists (winus). Therefore, Indonesia.travel as system web tourism is built by government Indonesia (Ministry of Tourism of the Republic of Indonesia) to provide information tourism in Indonesia. But along the way based discussion forums that exist on Indonesia.travel found many users have expressed dissatisfaction with the system. Most users feel a system has not provided sightseeing recommendations in accordance with the wishes and needs.

2. Literature review

The quality of information systems according to DeLone and McLean (1992) translated by Istianingsih and Utami (2009) is "Quality means focusing on system performance information system consisting of hardware, software, policies and procedures that can provide information needed by users consisting of ease to use (ease to use), ease of access (flexibility), system reliability (reliability)".

As quoted from Al-Qutaish, and Rafa (2010), ISO 9126 is an international standard for assessing the quality of a system. The ISO 9126 made by the International Organization for Standardization (ISO) and International Electrotechnical Commission (IEC) for software quality measurement. It was derived using the McCall model and defines the quality of software products, models, quality characteristics and related metrics used to evaluate and define the quality of a software product. Here is a factor and attributes that can be used to assess the quality of software according to ISO 9126: Functionality, Reliability, Usability, Efficiency, Maintainability, Portability (Ahmad, Beg and Haleem 2013).

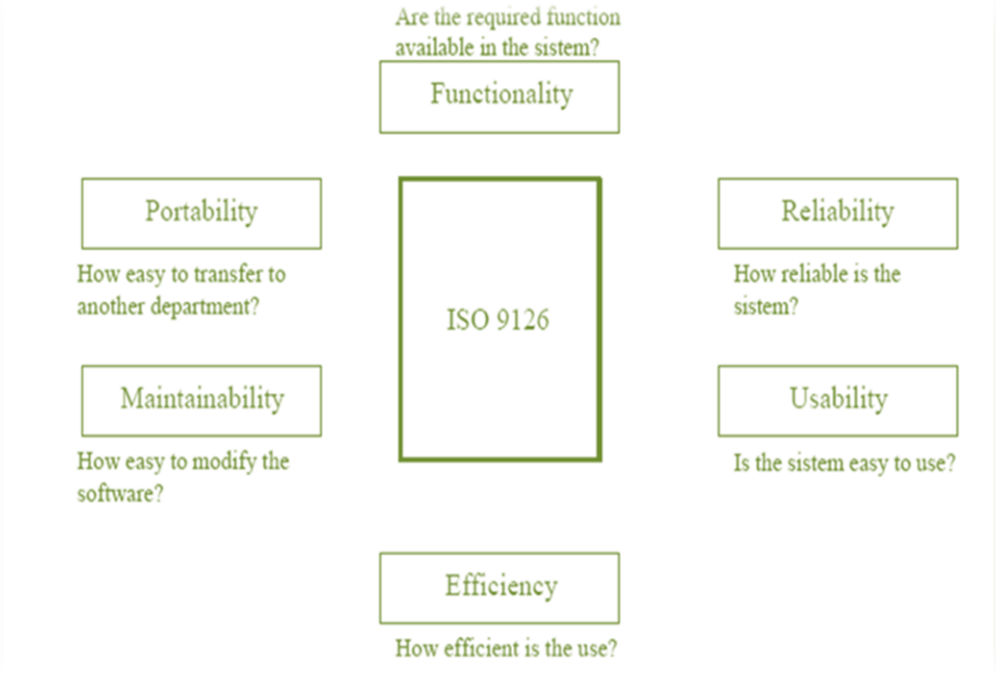

Figure 1 - Quality Model ISO 9126

This paper only focuses three dimensions: Functionality, Usability, and Efficiency. *Functionality* focuses on the existence of a collection of functions, the ability to satisfy the desires of its software in accordance with the functionality expected by users. *Usability* focuses on the effort required in using the system. *Efficiency* emphasizes the relationship between the level of performance of the software and the number of resources needed under certain conditions. Recommendation system is a model application as the results of observations of the circumstances and wishes of the customer (Schafer, Konstan and Riedl 2001, Sebastia *et al.* 2009). Therefore the recommendation system requires model appropriate recommendations that are recommended in accordance with the wishes of customers, as well as enabling customers to make the right decision in determining which products will uses (McGinty and Smyth 2006).

3. Research methodology

The object of research is *www.indonesia.travel*. This is the official web owned Indonesian tourism ministry provides information on tourism in Indonesia, such as the marine tourism, nature tourism, cultural tourism, the city's entertainment, business & assembled, dynamic sport, relaxation, amusement parks, sightseeing attractions, and agencies trip.

The purposes of Indonesia travel are:

- Provide useful information and references about the trip to Indonesia.
- Being a center between the travel and tourism industry for the trip in Indonesia.
- Facilitate media for travelers to share their experiences in Indonesia.

In analyzing system performance and analysis of user expectations, the variables in this study uses a questionnaire as factors of the ISO 9126 standard to measure the quality of a system (Bee 2004). Standard ISO 9126 is one of the general frame works on the characteristics of quality software, which is believed to have a more adaptable force that can be used for the whole system, especially establishing a common framework in the evaluation of software.

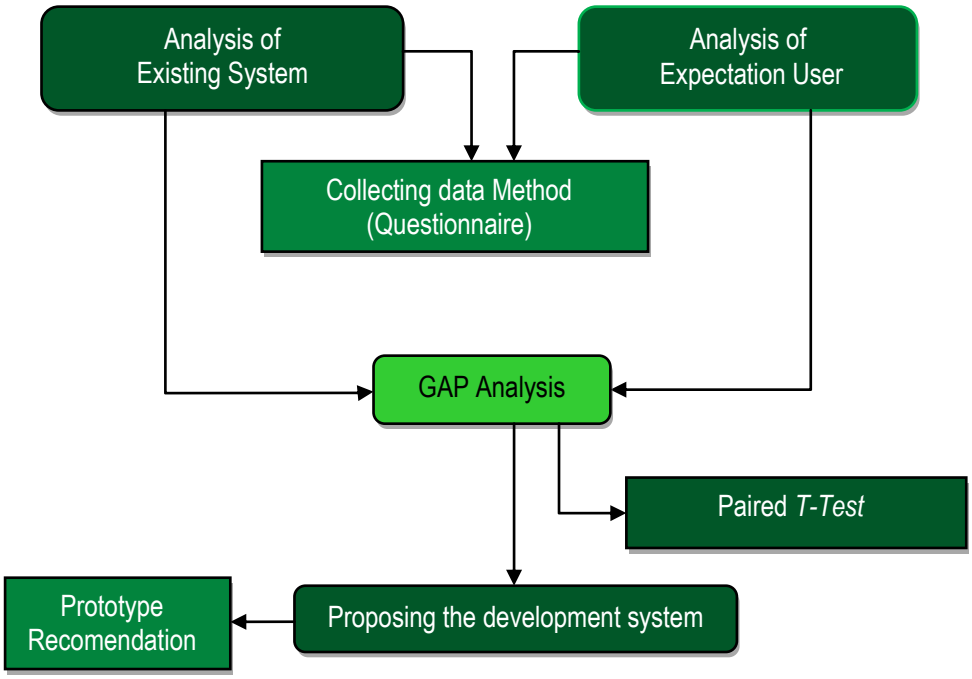

Figure 1 - Framework in the research

3.1. Variable research

Variables are symptoms which become the focus of researchers to be observed. Variable research is an attribute or trait or value of people, objects or events that have a certain variation defined by researchers to learn and then drawn conclusions.

The independent variable is the "variable that affects or the cause of changes or the emergence of the dependent variable (dependent)". In this study, the independent variables were used to assess the quality of the system referring to the standards ISO 9126. Thus the independent variables in this research are:

1. Functionality (X_1, X'_1)
2. Usability (X_2, X_2)
3. Efficiency (X_3, X'_3)
4. Satisfaction (X_4, X_4)

where: X_1, X_2, X_3, X_4, are variables associated with a user's view of the current recommendation system performance; X'_1, X'_2, X'_3, X'_4 are variables associated with the user's expectations regarding the performance of the system to current recommendations.

The dependent variable is the "variable or variables that influenced widened as a result, because of the free variable". In this study, the dependent variable used is the satisfaction of users of the system recommendation which consists of several components as follows: satisfaction with the overall system performance, the possibility to continue to use the system, rarely got a problem with the system, satisfaction in using the system.

In the data collection using the questionnaire survey as the main instrument, it is important conduct an examination of the validity of the items of the questionnaire questions. Validity indicates the degree to which a measuring device that is able to regulate what is to be measured. Validity testing was performed using SPSS version 20. Reliability means consistent and reliable. That is, the numerical results produced by an indicator varies not because of the characteristics of the measurement process or measurement instrument itself reliability is an index number which shows the consistency of a gauge in measuring the same symptom. There are several techniques that can be done to measure reliability, such as the engineering test-retest, engineering Spearman - Brown, engineering K-R20, engineering K-R21, engineering Cronbach's Alpha by using SPSS version 20, to determine whether the instrument in this study reliable or it will use the following rules.

3.2. Analysis method

In this section, analysis of expectation user, existing system, and the gap of expectation and existing are evaluated. The expectation user analysis aims to determine user expectations on the performance of the current system, according to user. Variables used in the questionnaire together with the analysis of system performance are based on several factors of the ISO 9126 standards, namely Functionality, Usability, Efficiency, besides user's satisfaction. The existing system analysis aims to determine the performance of the current system, according to user. Variables used in the questionnaire based on several factors of the ISO 9126 standards, namely Functionality, Usability Portability, besides user's satisfaction. The GAP analysis is done to determine what items need to be improved according to user expectations when compared with the performance of the system running. At this step, by using statistical analysis, the paired *t-test* analysis is conducted. Paired *t-test* analysis is used to analyze the gap between user expectations on the performance of the recommendation system.

4. Research methodology

4.1. Performance analysis system

The number member of Indonesia.travel is 5051 (March 2014). We take 370 respondents from member to fulfill the need of this survey. Table 1 shows the summary results of average gap of 370 user expectations and existing system. From the above table, it can be seen that the biggest gaps is the functional dimension, which is equal to -1.42. The average expectation of 370 respondents in the functional dimension of 4 items valid question is 3.84 with an average performance of the system is 2.43. The smallest gap is the dimension of usability, 0.03. The average expectation of 370 respondents at ease dimensions of 4 items valid statement is 3.88 and the average performance of the system is 3.91. On the efficiency dimension of 4 items valid statement, the average user expectations are 3.85 and the average performance of the system is 3.01. In the overall satisfaction dimension of 4 items valid statement, user expectations are 3.81 and the average performance of the system is 2.64.

Table 1 - Summary Average Gap between system performance and user expectations of the System Recommendations

Dimension	Expectation User (1)	Existing System (2)	GAP (2-1)
Functionality Dimension			
The system provides sightseeing recommendations according to your chosen destination	3,83	2,46	- 1,37
The system provides sightseeing recommendations in accordance with the activity you choose	3,84	2,43	- 1,41
The system gives recommendations in accordance travel packages to fit your needs	3,84	2,41	- 1,43
The system can help you make a trip plan	3,86	2,40	- 1,46
Average Score	3,84	2,43	- 1,42

Usability Dimension			
It took a short time to understand how the system works	3.87	3.85	- 0,02
No need training to learn how the system works	3.86	3.98	0,12
The system provides clear instructions in its use	3.92	3.94	0,02
Using a display that is easy to understand	3.88	3.87	- 0,01
Average Score	3,88	3,91	0,03
Efficiency Dimension			
Search process data into the system can be performed with short	3,87	3,58	- 0,29
The process of granting recommendation made quickly	3,86	3,63	- 0,23
The system is in conformity with the requirements	3.96	2,35	- 1,61
The system can provide a recommendation attractions, travel agents and tour packages are complete	3,69	2,46	- 1,23
Average Score	3,85	3,01	- 0,84
Satisfaction Dimension			
Overall system performance has been good	3,81	2,41	- 1,40
You will continue to use this system	3,83	2,86	- 0,97
You would recommend the system to others	3,82	2,86	- 0,96
You are satisfied in using this system	3,79	2,41	- 1,38
Average Score	3,81	2,64	- 1,17

In general the results of the gap analysis for each dimension shows that the biggest gap between the expectations of users with system performance occurs on the functional dimension.The gap also happens on dimension efficiency. However this gap is less than on functionally dimension. The big gap also happens on satisfaction dimension which indicates that the expected of users are not achieved. The interest thing is the gap in usability dimension is positive. It means the users are satisfied in ease dimension to use the web system. Table 2 shows *p-value* test for the user's expectations and the performance of the system on every dimension measured was 0.000, as shown in Table 2.

Table 2 - *t-Test* Results of four dimensions

No	Dimension	User expectations	System Performance	*p- Value*
1.	Functional	3.83	2,46	.000
2.	Usability	3,86	3,98	.000
3.	Efficiency	3,86	3,63	.000
4.	Overall Satisfaction	3,83	2,86	.000

Based on the gap analysis carried out, the items that require special attention from the ministry of tourism as a manager and should be repaired or upgraded can be seen as shown on Table 3. Since the gap value on functionally dimension is high, the recommendation items in this dimension are more than the others. Contrarily, the item on usability dimension is not needed.

Table 3 - The items to be repaired

DIMENSION	GAP	THE ITEMS TO BE REPAIRED
Functional	- 1,42	- The system provides sightseeing recommendations in accordance with the select destinations (item 1). - The system provides sightseeing recommendations in accordance with the activity chosen (item 2). - The system gives recommendations in accordance travel packages according to the needs (item3). - The system can help create a trip plan (item 4)
Usability	0,03	- System provides clear instructions in its use.
Efficiency	- 0,84	- The system can provide a recommendation attractions, travel agencies and tour packages are complete (item 5)

4.1. Development Recommendation System

To implement the items reference on Table 3, the development and modified of Indonesia.travel web is needed. The development system is built with a recommendation system. The recommendation is considered as suitable system to accommodate the items required. The development system focuses on two kind vistiors in system, guest and member.

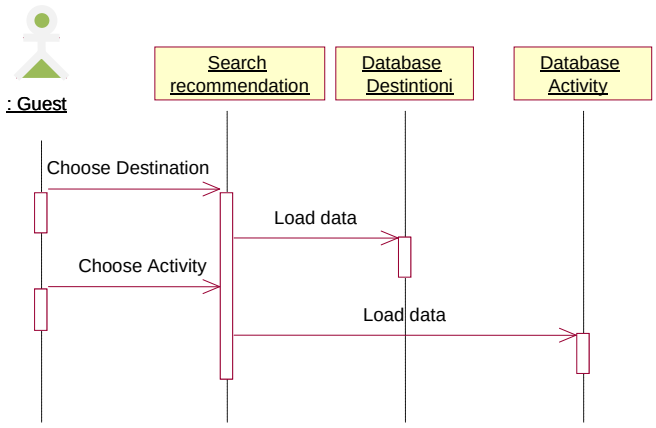

Figure 3 - Squence Diagram Guest for "*Search Recommendation*"

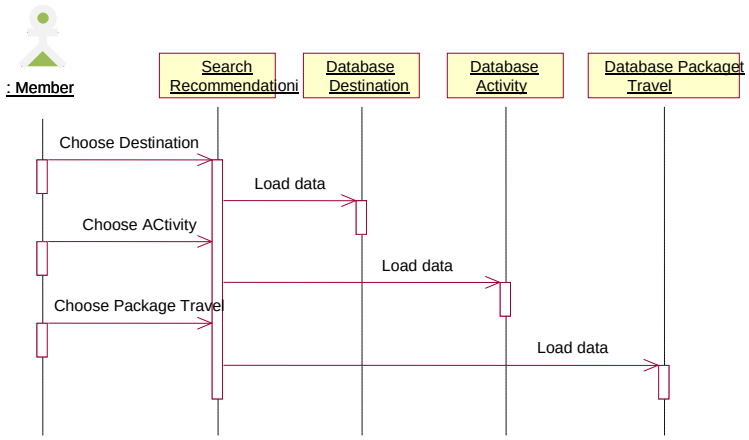

Figure 4 - Sequence Diagram Member for "*Search Recommendation*"

In the process of guest's recommendation, the guest can have recommendations based on destinations/activities/destinations and activities. Then, after determining the selection, the system will display the data according to the guest's selection as shown Figure 3. For member's recommendation is same but adding the package travel as shown Figure 4. Figure 5 shows the guest interface to find travel recommendations before modifying. After modifying, as shown Figure 6, guest can seek recommendations based destination tourism or activity or a combination of them. It can be seen that the Figure 6 is more completed recommendation as item 1 and item 2's suggestions.

On member interface before modifying as shown Figure 7, the menu only can show information of destination. After modifying, the menu member as shown on Figure 8, it can seek sightseeing recommendations based destination, activity, estimation budget package and/or their combinations.

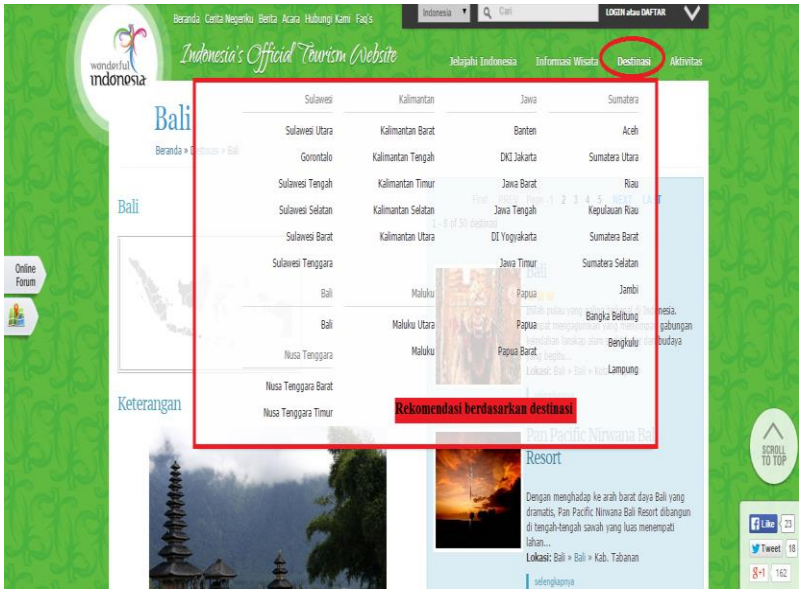

Figure 5 - Guest's interface finds travel recommendations before modifying

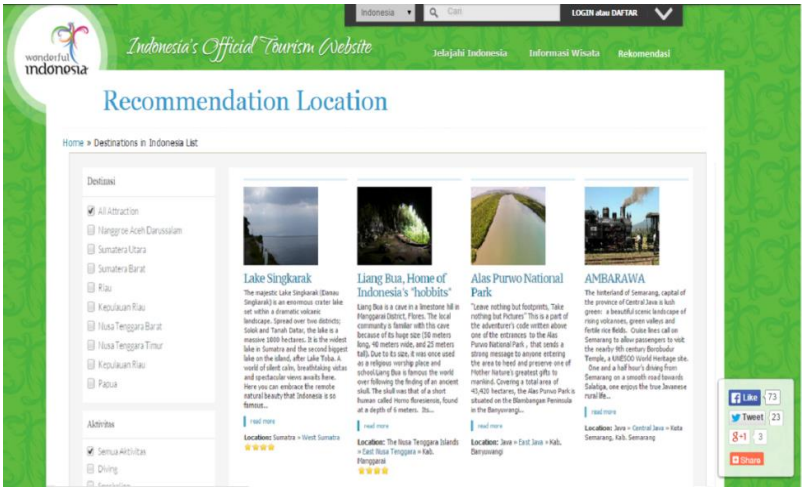

Figure 6 - Guest's interface finds travel recommendations after modifying

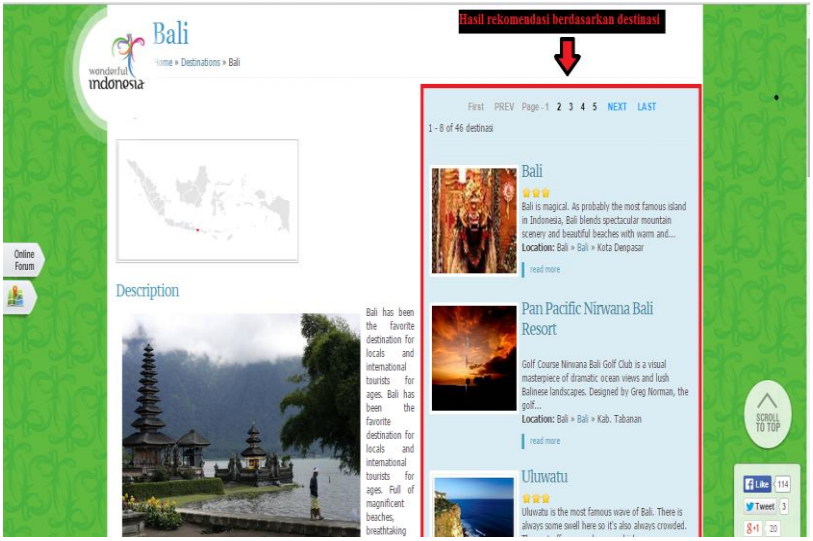

Figure 7 - Member's interface finds travel recommendations before modifying

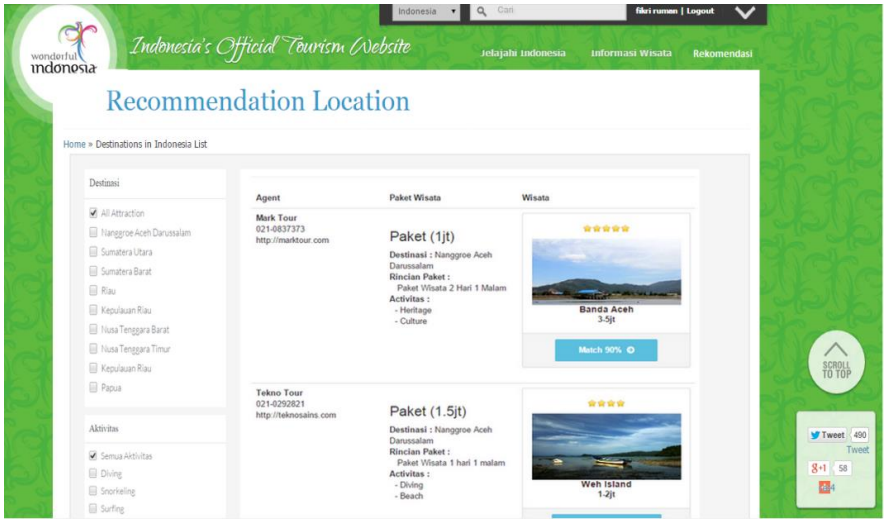

Figure 8 - Member's interface finds travel recommendations after modifying

Conclusion

This research shows there still have a gap between user expectations and system performance. It is measured in four dimensions, namely functionality, usability of the system, efficiency, and overall satisfaction.

The results show the functionally dimension has the biggest gap. They also show there is a significant unsatisfactionon user. With the gap, then the system is developed by using recommendations system. From this prototype development, it is expected to assist in improving the performance of the system Indonesia.travel. As suggestion, the system is evaluated in a certain period and various methods to enhance the performance system.

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