

Performance of the usage Web Technology in Indonesia Tourism by using Modified Balanced Scorecard Methods (mBSC)

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Abstract - Despite the number and types of tourism in Indonesia which are superior than in neighbouring countries, the number of foreign tourists are far from comparable to neighbouring countries such as Malaysia, Singapore, and Thailand. There has been various efforts in promoting tourism in Indonesia which include promotion through the use of web technology. However the result have not been satisfactory. One of the indicators of a successful promotion of tourism is the number of foreign tourists. This research aims to evaluate the use and the development of web technology specially the use of website tourism provincial offices, hotels, travel agencies, and tourist destination offices. The methodology used to determine the variability of the websites is mBSC (modified Balanced Scorecard) and subsequently applied with statistical descriptive analysis in order to know the aspects that need to be given priority in web development. The data retrieved from provincial, district or city tourism offices, tour and travel agencies, hotels, and tourist destinations. The results of the analysis is used to assess and formulate a proposed model in website application development that integrates the tourism sector in order to achieve effectiveness, efficiency and productivity in tourism business management.

Keywords: *tourism, website, tourists, effectiveness, efficiency*

I. INTRODUCTION

Tourism is an integral part of human life, especially in social and economic activities. It started from activities previously enjoyed only by a handful of people who are relatively rich in the early 20th century, has now become a part of human rights. This happens not only in developed countries but also began to be felt in developing countries including Indonesia. In this connection, several countries including Indonesia are also enjoying the effects of the increase in world tourism especially in the period 1990-1996. Indonesia's tourism potential is enormous. Stretching from the Province of Nanggroe Aceh Darussalam to Papua with all the diversity of tourism, a variety of cultural arts charming and availability of facilities and infrastructures supporting tourism, all of which are expected to attract more national income, from domestic and foreign tourists. Indonesia is rich with a variety of cultural attractions and the beauty of nature, as well as a variety of dishes that contain high taste in culinary tourism. The beauty of it all is finally making Indonesia is known as one of the popular

tourist spot. The economic crisis that hit Indonesia since the end of 1997, is a very valuable experience for the people of Indonesia tourism for repositioning as well as the revitalization of Indonesian tourism activities [23]. In practice, to make available tourism information facilities it needs to develop a web-based tourism application model, or build a tourism website as the central data and information of tourism products in the region at the provincial and district levels to the customers [18]. The use of information technology, especially web technology, will create networking opportunities in strengthening the tourism sector. Internet media are growing rapidly at the end of the last century, which is important in the planning and management of tourism. It supports the creation of virtual networks of economic value chain that is connected between the interests of the other interests in the framework of the tourism industry [13]. The support of information technology in tourism, also expressed that a tourism network system is the one that compromises a multiplicity of autonomous, interdependent, enterprise without physical borders of separation from environments that rely on the internet infrastructure to integrate and exchange value. Putera [19] defined tourism as any stakeholder efforts in improving the effectiveness and efficiency in the field of tourism, providing a variety of services to the tourism tourist service users, in the form of telematics (information and telecommunication), and made tourism marketing organization more accessible. Development of Internet technology in the mid-1990s, encouraging a variety of industries use it to speed up business processes, improve performance in their efforts to gain a strategic advantage that they do conform industry. Many institutions, the local tourism managers are also apply the use of information technology to the management, servicing and marketing. Information and Communication Technology (ICT) is used to support the management of tourism, distribute the tourism information managed by the region in a variety of forms of tourism information. Nowadays various attempts have been made either by the government, private sector, and the community to step up efforts in the field of tourism in Indonesia, including the use of web technology, although the results have not shown an increase as expected. One indicator of the tourism sector has not been successful

reflected in the of number of foreign tourists visiting Indonesia in comparison to those who visit neighbouring countries. Compared to neighbouring countries such as Malaysia, Singapore and Thailand, are shown in the table below, the number of foreign tourists of Indonesia, still has not been proportional to the amount and type of attraction in Indonesia.

Table 1. Number of Foreign Tourists of Indonesia, Singapore, Malaysia, and Thailand

Country	2011	2012	Average/Year
Indonesia	7.649.731	8.044.462	7.649.731
Singapore	13.200.000	14.400.000	13.800.000
Malaysia	23.646.191	25.032.708	24.389.499
Thailand	19.230.470	22.303.065	20.766.717

Sources: CBS, Tourism Boards

Many factors affect the success of businesses in the tourism sector, one of which is the use of web technologies to support the promotion of tourism as well as the ease of the transaction or the process of tourism flying businesses are now starting to be used (Dimitros Buhalis, 2008).

II. RESEARCH QUESTIONS

Two research questions in this study are:

- (1) How far is the performance of the use web technology in management, servicing and marketing of tourism in the region; and
- (2) What are the constraints found in the utilization of web technologies to support the tourism that has been implemented by managers in the region?

The answers to the questions above are imperative for the business communities of tourism such as hotels, tour and travel agencies, travel destinations offices. They can be used for several applications such as:(1) to foster awareness of the use of information technology to enhance their competitive edge in the global competition; (2) to raise awareness to always rejuvenate information about products and services provided; (3) to encourage businesses to develop information technology to support their business activities with the right content and display competitive. The Government as the stakeholder policy would also benefit from the answers to: (1) support the formulation of national policies in the field of tourism across different regions, especially in the provision of tourism infrastructure; (2) support the use of web technology policy formulation in the field of integrated tourism; (3) integrate web infrastructure development nationally as a prerequisite utilization of web technology in the field of tourism.

III. RESEARCH METHODOLOGY

A. Modified Balanced Scorecard (mBSC)

This method is derived from Balanced Scorecard (BSC) discovered by Robert Kaplan and David Norton in 1996. Balanced scorecard is a strategic planning tool and management system that is used in business and industry, government, and non-profit organizations worldwide to align business activities to the vision and strategy of the organization, improve internal and external communications, and monitor organization performance against strategic goals of the company. BSC is used as a performance measurement framework that balanced between the performance of the financial sector and non-financial, that organizational performance is measured with four perspectives: financial, customer, business process, and growth [2] [3]. By referring other studies conducted by Douglas [14], Feng [15], Kim [16], and Myung [17], Stepechenkova [7] concluded the mBSC is to satisfy the evaluation needs of tourism and hospitality websites by emphasizing such perspectives of website performance comparison as technical functionality, customer friendliness and usability, marketing effectiveness, and the level of information presented. In the study of Stepchenkova [7], the tourism websites are evaluated in four perspectives: technical (overall technical functionality), customer (customer friendliness and usability), marketing effectiveness (effectiveness of marketing the destination), and destination information (information needs). In this study tourism websites are evaluated in similar perspectives: customer friendliness and usability, effectiveness of marketing, organization functions and technical functionality.

B. Research Design

This study is a combination of qualitative and quantitative research, to evaluate the performance of the business use of web technology in the field of tourism. Design research is designed based on the research objectives which have been formulated in the form of research questions, relating to the use of web technology in the field of tourism business. The study design will show the relationship between independent variables and the dependent variable that will affect the success of business in the field of tourism and direct or indirect variables used in web technology. Website performance is the dependent variable that is affected by the variability components that are built based on the design of strategies, tasks and functions, as well as business goals or objectives of the agency business and entrepreneurs in the field of tourism. With reference to the modified method of the balanced scorecard (mBSC), four perspectives consistent with the Stepchenkova [7] will be used as further explained below.

- (1) Customer friendliness and usability

Evaluation is done by using a 19-22 indicators to assess the benefits and usefulness of the site for visitors at

home and abroad, the level of website accessibility and ease of reach of the site, ease of website navigation features, appeal of website display, overall appearance and ease of finding relevant information on the website [7] [8] [9].

(2) Effectiveness of marketing

Evaluation is done by using 12-20 indicators to assess: ability to attract both individual or group, sale value, ability to sell products, creation of tourism product marketing relationships, ability to support partnerships, currency information, value adding offered [1] [18] [23].

(3) Office tourism functions

Information in the website should reflect the organization functions as facilitator or business in the field of tourism and tourist destinations. On this basis, 11-18 indicators are used to evaluate if the information provided covers regulatory and legal, transportation and infrastructure, facilities and collaboration, support events and festivals, travel information with public transportation, meetings and conference information, specific information for tours, information for other purposes [1] [24].

(4) Technical functionality

It is important for any website to align itself with the principles of good Web design such as capacity links, HTML languages, internet browsing compatibility and load time. On this basis, 23-25 indicators are used to evaluate the variability of information technology infrastructure and technical capabilities [21].

C. Performance measurement

To measure the performance of the websites, questionnaires are used to capture the four categories above. A response of "yes" or "no" for each survey item is expected. To have a 95% level of confidence, the survey conducted in this study covers 103 official tourism websites of provincial out of 142 available websites, district or city, 103 hotel websites out of 141 available websites (DKI Jakarta), 91 travel agency websites out of 121 available websites, and 108 tourist destination websites out of 151 available websites [4] [5]. Other tourism related websites, such as airline websites, tourism search engines, travel blogs, online tour guides and online travel magazines are excluded from this study due to priority reasons. Twelve evaluators had been trained by the author to evaluate the websites and each website is evaluated by three evaluators to minimize subjectivity of a particular evaluator. A "yes" response is given value of "1" while a "no" is given the value "0" [7] [3]. The total value of "1" is obtained from each category is calculated into a percentage value with a maximum score of 100%.

Table 2. Performance Categorization

Category	Performance Score
Very less effective	0 - 45
Less effective	45 - 60
Effective	65 - 84
Strongly effective	85 - 100

The overall performance is calculated by summing all results and then divided by four. The resulting score considered as indicator of the overall of website performance. Performance obtained was classified into four categories: very less effective, less effective, effective and strongly effective as shown in Table-2 above.

IV. RESULTS AND DISCUSSION

A. RESULTS

a. Provincial and district tourism offices

Table 3. Descriptive Statistics of Provincial and District Tourism Offices Performance

Variable	Mean	SD
Customer	52.65	11.26
Marketing effectiveness	33.36	19.41
Office Function	38.49	21.39
Technical	59.17	11.26
Performance	45.92	14.40
Variable	Skewness	Kurtosis
Customer	-13.47	-19.33
Marketing effectiveness	60.85	-22.75
Office Function	31.31	-64.76
Technical	-45.25	22.00
Performance	18.14	-21.98

Based on Table 3, it can be concluded that the performance of the provincial or district office tourism website is in the category of "less effective". From all four categories, marketing effectiveness has the lowest score which translates to tourism provincial and district or city websites are not providing enough information to facilitate the tourists to visit and enjoy the tourist products presented by the tourism businesses. Skew showed positive number and kurtosis showed negative number which translates to provincial or district office tourism website performance is significantly below average although they are spread over.

b. Travel Agencies

Based on the following Table 4, it can be concluded that the performance of the travel agencies' websites are in the category of "less effective".

Table 4. Descriptive Statistics of Website Tourism Travel Agencies Performance

Variable	Mean	SD
Customer	68.86	12.52
Marketing effectiveness	46.86	22.42
Office Function	43.57	15.55
Technical	78.18	9.44
Performance	58.87	10.96
Variable	Skewness	Kurtosis
Customer	-0.47	-0.58
Marketing effectiveness	-0.05	-0.67
Office Function	-0.11	-0.58
Technical	-0.96	1.71
Performance	-0.25	-0.39

From all four categories, office function has the lowest score which translates to travel agencies websites are not providing adequate information to support attracting tourists to visit and enjoy the tourism destinations and / or events that are organized by tourist destination offices or hotels. Negative skew and negative kurtosis but small numbers indicated travel agencies websites performance are near above average and tend to normal.

c. Hotels (DKI Jakarta)

Following Table 5 shows the performance of the hotel websites (DKI Jakarta) are in the category of "less effective". Between the four perspectives, the performance of functionality looks lower than others. Or hotel websites providing information are not enough to attract tourists to visit and enjoy the sights products and events. They did not support collaboration with business partners as well, such as hotel website did not inform the tourist destination nearby the hotel so that the tourist destination will inform the hotels located nearby the tourist destination. Negative skew and kurtosis showed some hotel website performances are significantly above average and they are spread over.

Table 5. Descriptive Statistics of Hotel Performance

Variable	Mean	SD
Customer	67.00	11.65
Marketing effectiveness	59.55	24.56
Office Function	51.28	15.94
Technical	56.50	8.87
Performance	58.77	12.91

Variable	Skewness	Kurtosis
Customer	-61.90	123.76
Marketing effectiveness	-55.43	-71.23
Office Function	-12.26	-24.63
Technical	0.62	4.50
Performance	-50.77	-14.51

d. Tourist Destinations

Table 6. Descriptive Statistics Tourist Destination Performance

Variable	Mean	SD
Customer	56.30	10.47
Marketing effectiveness	26.50	18.52
Office Function	31.89	17.39
Technical	49.72	9.23
Performance	41.10	10.37
Variable	Skewness	Kurtosis
Customer	5.98	47.98
Marketing effectiveness	109.75	54.30
Office Function	58.40	-20.79
Technical	17.51	-31.94
Performance	92.62	72.62

Table 6 shows the performance of the website in the category of tourist destinations are "very less effective". Among the four categories, the marketing effectiveness and the look and function categories are ones needing most improvement. In other words, travel destination websites are not providing adequate information to attract tourists to visit and enjoy the tourism products and events that are organized by work units tourist destinations. Positive skew with positive kurtosis showed some tourist destination website performance below average but concentrate near the modus.

B. DISCUSSION

Website performance greatly affects the performance of the system they support which in turn impacts the success of the business. Thus it is important to optimize the website performance. The success of the business can be measured from the many aspects which include: ability to generate profits, market position, improvement in quality of human resources and business development. In these aspects, the performance of the four actors studied is discussed as follow.

a. Provincial, District / City Tourism Office

The low web performance of this business actor is contributed by technical factors such as: (1). Unavailability of Frequently Asked Questions (FAQ) ; (2). Absence of a

Site Map; (3). Long or complicated domain name; and (4). No internal search engines.

The low performance in marketing effectiveness can be contributed to the lack of participation in tourism information products such as tourist destination, local hotels, promotions, events (festivals or performances to the public) that can increase the number of tourist visits.

The low performance contributed by the organizational functions are: (1). Lack of information on destination such as local map and tourist events; (2). Lack of information in the history and culture of the area; (3). Lack of display in tourist information; (4). Unavailability of information on tourist visa or other immigration rules; and (5). Lack of coordination and cooperation with other business actors such as hotels and tourist destinations offices.

From technical perspectives there are: (1). Lack of SEO (Search Engine Optimization) techniques, making it difficult to search under google search; (2). Difficulty in searching for specific information in the website; (3). Absence of link facilities between business actors to support collaboration; (4). Unavailability of live chat; and (5). Sliders unutilized for easy access to information in relationship with promotion or others.

b. Travel Agencies

The low web performance of this business actor is contributed by technical factors such as: (1). Absence of a Site Map; (2). Absence of foreign language features, making it difficult for users to understand information; (3). Absence of links to other relevant websites, forcing users to start from the beginning to find desired information; (4). Unavailability of Frequently Asked Questions (FAQ); (5). No internal search engines.

The low performance in marketing effectiveness can be contributed to: (1). No information on current foreign exchange rate, making it difficult for the customer to create a budget estimation; (2). Slow booking process, which may cause customers to cancel transactions, (3). Lack of transparency in price which leads to difficult budget estimation; (4). No comparable information between products which makes customers unable to compare the benefits or one product from the other; and (5). Complicated transaction process such as lack of ease of payment (i.e. by using credit card).

The low performances contributed by the organizational functions are: (1). Lack of information of products or services which may lead to decrease in sales of tour packages; (2). Lack of location maps and tourist guides to inform the location of tourist destinations; (3). No information of events conducted by hotels or tourist destinations to increase the chance of selling tour packages; and (4). No information on local tourism activities.

From technical perspectives there are: (1). Low access speeds brought by unexploited CSS3 which could have alleviate bandwidth to access websites; (2). Less attractive websites due to not using HTML-5 features; (3). Missing

PayPal facilities which may have reduced transaction opportunities; and (4). Lack of sliders to make essay promotion purposes and scrolling techniques that making it difficult to obtain geographic information features

c. Hotels (DKI Jakarta)

The low web performance of this business actor is contributed by technical factors such as: (1). Unavailability of Frequently Asked Questions (FAQ) page / live chat; (2). Absence of a Site Map; (3). No internal search engines; and (4). No foreign language feature.

The low performance in marketing effectiveness can be contributed to: (1). Lack of updated information; and (2). No current tourist information events.

The low performances contributed by the organizational functions are: (1). No vision, mission and strategy of the hotel; (2). No interactive features to get hotel information, (3). No information on tourist events and destinations to increase chances of selling hotel rooms; and (4). No information on hotel partners such as travel agencies and tourist destination offices.

From technical perspectives: (1). No search engines, (2). No SEO; (3). No HTML 5 features; (4). Low speed due to not using CSS3 technology; (5). No sliders and scrolling techniques, making it difficult to obtain information as whole; (6). Unavailability of link facilities to support collaboration; and (7). No site map.

d. Tourist Destinations

The low web performance of this business actor is contributed by technical factors such as: (1). Unavailability of Frequently Asked Questions (FAQ) page / live chat; (2). Absence of a Site Map (3). No foreign language feature; (4). No links to other relevant websites so users always have to restart from homepage to find desired information; and (5). Less attractive website design.

The low performance in marketing effectiveness can be contributed to: (1). Lack of promotion of new products, reducing tourists visits; (2). No ease of payment (i.e. via credit card) which complicates transaction process; (3). Slow booking process causing customers to cancel transaction; (4). No information on price which leads to difficult budget estimation; (5). No cooperation with partners to market its products; and (4). No tips information on how to visit tourist destinations so tourists are not aware of benefits to be gained.

The low performances contributed by the organizational functions are: (1). No information on events; (2). No information on location maps and tourists information events which could have increased chances of selling tour packages; and (3). No information on hotels closest to tourist destinations

From technical perspectives: (1). Lack of SEO (Search Engine Optimization); (2). No HTML 5 features; (3). Pay pal techniques not provided which reduces transaction opportunities; (4). No sliders and scrolling techniques, making it difficult to obtain information as whole; and (5).

Small number of people uses media blogs in websites which gives less support in delivery points in detail.

V. CONCLUSION

Based on the discussions, the following findings are observed: (1). The four actors in this study are still performing in the category of “less effective” which do not maximize their role in supporting the success of the tourism industry; (2). There are many areas for improvement in the utilization of web technologies to support the tourism industry, namely technical infrastructure of information technology, collaboration and rejuvenation of tourism data, integration of websites and domestic and international tourist information; and (3). All of the tourist destination websites are in the “very less effective” category which highlights the need to improve and refine Indonesian tourist destination websites.

This study has shown the performance of provincial, district / city tourism office websites and other business actors in Indonesia, namely travel agencies, hotels (DKI Jakarta) and tourist destinations. Results show the average performance of these four actors is below expectations in four perspectives: users, marketing effectiveness, organizational functions and technical website. High skewness and low kurtosis for all performances indicate there is small number of websites with outstanding performance. These websites can provide development, improvement and enhancements for others which can be an area for further study. In addition, more research can be conducted on the impact of the use of web technologies to the success of business tourism and a review in the tourism marketing and promotion policy.

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