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Development of A Prototype Website For The Lake Toba Authority Planning Agency Based on The Ictrt Model (Information, Communication, Transaction, Relationship, And Technical-Merit)

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Abstract

The purpose of this study was to determine the development of a prototype of the Lake Toba Planning Authority website based on the ICTRT model. This research method is descriptive qualitative. The location of the study is on the BPODT website, Toba Caldera, North Sumatra Province. The research period is June-July 2024. The data sources in this study use primary and secondary data. Primary data was obtained from observations on the BPODT website link. Secondary data was obtained from books, journals, and previous research. Data collection techniques in this study were observation and literature review. The data analysis technique in this study used the ICTRT model which was then carried out by data reduction, data presentation, and drawing conclusions. The results of the study stated that the development of the BPODT website was carried out to make it easier for users to make the website user friendly. The development of the BPODT website was carried out in the information and communication dimensions such as photo galleries, creating travel tips, creating destination facts, and adding information via email. The development of this website was carried out as a short link that makes it easy for users to get information quickly and accurately.

Keywords: Development, prototype, website, bpodt, ictrt model.

1. INTRODUCTION

The development of technology today is very rapid. One of them is the development of technology for the world of tourism. Many tourism sectors use technology to introduce their destinations. The technology used is like using a website. A website or web is a site on the internet that is used as a search for information about various desired topics (Rahmadi, 2013) .Website development can be done by creating a model or prototype. Prototype is an approach to developing a product that goes through the process of creating an initial design, sample or model (Pantiwati et al., 2024) .

The model that can be developed to develop tourism products is using the ICTRT model. The ICTRT model (*Information, Communication, Transaction, Relationship, and Technical-Merit*) is a comprehensive framework for website development that focuses not only on providing information, but also on aspects of communication, transactions, relationships, and technical quality. This model integrates various important elements needed to create an effective and efficient website in

supporting organizational goals (Li, X. & Wang, 2010) . Development is a process of making planned changes to a region or area in terms of social, economic, environmental, infrastructure and so on. In other words, development must be carried out in planning (Ridwan, 2019) .

A prototype is an initial model of a product that is being developed, where the prototype is used as a product design stage before entering the full development stage. The prototype includes various elements, such as layout, button functions, navigation, user interaction, and the visual appearance of the product. Prototypes are used to identify the strengths and weaknesses of the design, collect feedback from users, and make improvements and refinements before the final product is produced (Pantiwati et al., 2024) .

The World Wide Web (WWW) is a collection of text pages, digital photos, music files, videos, and animations that can be accessed via the Internet. Internet. Web pages are basically text documents. formatted and annotated with *Hypertext Markup Language* (HTML). In addition to formatted text, web pages may contain images, videos, and software components displayed on the user's web browser as a multimedia content page that coherent (Sastradipraja & Munawar, 2022) .

The establishment of the Lake Toba Authority Implementing Agency (BPODT) was carried out to increase the competitiveness of national tourism with a focus on the development of tourism destinations, tourism industry, marketing, and tourism institutions or human resources (Kennedy, 2023) . The ICTRT model is an E-Tourism website evaluation model by assessing the level of effectiveness of the website. The evaluation model developed includes five evaluation dimensions, namely *information dimension, communication dimension, transaction dimension, relationship dimension and technical merit dimension* which are then divided into 47 evaluation instruments (Li, X. & Wang, 2010) .

Lake Toba, located in North Sumatra Province, Indonesia, is one of the leading tourist destinations with stunning natural beauty and high historical value. As the largest volcanic lake in the world, Lake Toba has great potential to be developed into one of the global tourism centers. However, this potential has not been fully utilized optimally due to various challenges faced in the management and promotion of this tourist destination.

One of the institutions that plays an important role in the planning and management of this area is the Lake Toba Authority Planning Agency. This agency is responsible for coordinating various efforts to develop the Lake Toba area in accordance with the government's vision and mission in improving national tourism. However, to achieve this goal, the Lake Toba Authority Planning Agency requires a digital platform that can support all aspects of tourism management and promotion effectively, such as the use of a website.

The BPODT website is not yet optimal in meeting user needs. This includes the lack of interactive features, difficulty in navigation, and the lack of accurate and up-to-date information because it is not *user friendly* . These various problems are seen using the ICTRT mode where there are still many indicators missing on the website. The ICTRT (*Information, Communication, Transaction, Relationship, and Technical-Merit*) model of the BPODT website can be seen in the table below:

Table 1. ICTRT Model Analysis for BPODT Website https://www.bpodt.id/#

Dimensions	No	Indicator	Available	No Available
Information Total: 19	1	Information Power pull tour	✓	
	2	Information activity tour	✓	
	3	Map and instructions direction		✓
	4	Information about accommodation	✓	
	5	Event calendar		✓
	6	Information entertainment	✓	
	7	Information restaurant		✓
	8	Tour packages	✓	
	9	Guide tour/brochure		✓

Dimension	No	Feature			
	10	Information transportation		✓	
	11	Gallery Photo			✓
	12	Link to page governmentlocal		✓	
	13	Information shopping			✓
	14	Information based on segment market		✓	
	15	Center information visitors			✓
	16	Tips traveling			✓
	17	The Facts destination			✓
	18	Information weather			✓
	19	Virtual tour		✓	
Dimensions Communication Total: 10	20	Feature search			✓
	21	Information contact		✓	
	22	Request brochure			✓
	23	Communication picture		✓	
	24	Language Which diverse		✓	
	25	Information past e-mail			✓
	26	Link to media social		✓	
	27	Feedback sheet (feedback)come back)			✓
	28	Survey			✓
	29	FAQ (matter Which most often asked)			✓
Dimensions Transaction Total: 5	30	Reservation on line			✓
	31	Purchase Ticket even			✓
	32	Purchase tour ticket			✓
	33	Basket shopping			✓
	34	Feature security web		✓	
Dimensions Connection Total: 6	35	Policy privacy		✓	
	36	Deals and discount			✓
	37	Personalization		✓	
	38	Recommendation theme shopping			✓
	39	Program incentive			✓
	40	Program customer loyalty			✓
Dimensions Technical Total: 7	41	Link to site the web that other		✓	
	42	Load time		✓	
	43	Machine seeker			✓
	44	Navigation	✓		
	45	Design web page	✓		
	46	Appearance visual	✓		
	47	Site folder			✓

Source: Researchers Year 2024 adapted from ICTRT Model Li & Wang, 2010

From the background explanation, the purpose of this study is to develop a BPODT website model using the ICTRT model. Based on this explanation, this paper is expected to contribute to decision makers in creating and developing websites with the ICTRT model.

2. RESEARCH METHODOLOGY

This study uses a descriptive qualitative method. The location of this research was conducted at The Kaldera which is managed by the Lake Toba Authority Agency, North Sumatra Province with the website https://www.bpodt.id/# . The time of the research was conducted in June-July 2024. The data sources in this study used primary and secondary data. Primary data were obtained from observations of the BPODT website. Secondary data were obtained from books, journals, and previous research. Data collection techniques in this study were observation and literature studies. The data analysis technique in this study used the ICTRT model which carried out data reduction, data presentation, and drawing conclusions.

3. FINDINGS AND DISCUSSION

Lake Toba Authority Agency (BODT) is an institution established by the Indonesian government to develop and promote the Lake Toba area as a leading tourism destination. BODT aims to increase the attractiveness of tourists, both domestic and international, as well as encourage economic development around the Lake Toba area. The establishment of BODT is based on the great potential of Lake Toba as a world-class tourist destination. Lake Toba, located in North Sumatra, is the largest volcanic lake in the world and is one of the most beautiful natural tourist destinations in Indonesia. In addition to its natural beauty, the Lake Toba area is also rich in unique Batak culture and traditions, making it an attractive destination for tourists seeking an authentic cultural experience.

From the research that has been conducted, observations state that each indicator of the ICTRT model is important to be developed and used. However, researchers also adjust to the needs of the existing website. Therefore, based on the results of the study, the ICTRT development model for BPODT can be seen from the following link https://bit.ly/3LDrsAX .

Figure 1. Main Menu for BPODT Website Development.
Source: Researcher 2024

User-friendly homepage design is essential to provide the best user experience. In this model development, it is a simplified link from the previous BPODT website link. The existence of a web that directly explains the main points of the search will make it easier for users to get information as quickly as possible.

The development of the ICTRT model from each dimension is as follows:
*Information Dimension*

The information dimension that has 19 indicators can be seen that there are 9 indicators that are already available on the BPODT website such as indicators of tourist attraction information, tourist activity information, information about accommodation, entertainment information, tour packages, transportation information, links to local government pages, information based on market segments, and virtual tours. While the other 10 indicators are not available on the BPODT website such as maps and directions, event calendars, restaurant information, tourist guides/brochures, photo galleries, shopping information, visitor information centers, travel tips, destination facts, weather information.

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From dimensions information researcher develop website with make restaurant information Which can seen in the picture following This.

Picture 2. Information Restaurant Development Website BPODT.
Source: Researcher Year 2024

Furthermore from dimensions information researcher develop website with create gallery the photo that can seen in the picture following This.
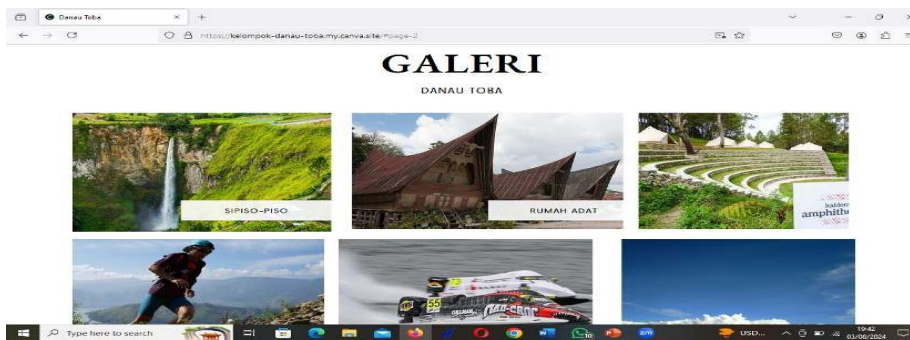
Picture 3. Gallery Photo Development Website BPODT.
Source: Researcher Year 2024

The next development is to create travel tips that can be used. do visitors or tourists when visiting Lake Toba. These tips can seen as following.


Picture 4. Tips Traveling Development Website BPODT.
Source: Researcher Year 2024

Furthermore, visitors website Also will get formation about fact-fact destination Lake Toba as picture under This.

Picture 5. Fact Destination Development Website BPODT.
Source: Researcher Year 2024

Final do development with make information weather Which Can inLook visitors or traveler. Information can be seen as follows.
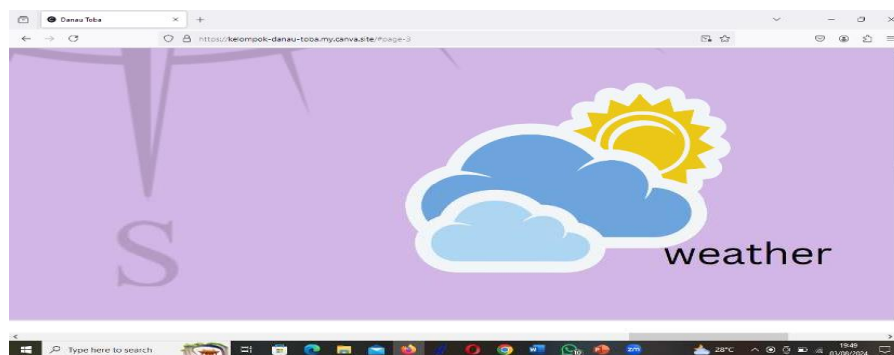
Picture 6. Information Weather Development Website BPODT.
Source: Researcher Year 2024

This is supported by research stating that the ICTRT model for the information dimension was developed to see how far the effectiveness of the website used by DMO (*Destination Marketing Organization*) (Li, X. & Wang, 2010) . In addition, this study is supported by previous research according to Nunung and Mashita which states that when the information dimension is used to analyze the online booking channel information system by tourism business activists, several aspects of the information dimension are found to be available and unavailable, this indicates the need for development to evaluate information systems in tourism businesses such as hotels that use *Traveloka, Agoda, and Booking* (Prajarto & Purwaningtyas, 2021) .

Based on this, it can be concluded that the evaluation activity for the development of the BPODT website using the information dimension is very important to improve the information system at BPODT regarding Lake Toba. This development can be done such as developing a photo gallery at tourist destinations managed by BPODT, travel tips and destination facts.

Communication Dimensions

The communication dimension has 10 indicators where 4 indicators are available on the BPODT website such as contact information, image communication, various languages, and links to social media. While the other 6 indicators are not available on the BPODT website such as search features, brochure requests, email information, feedback sheets, surveys, and FAQs (the most frequently asked questions).

Based on these dimensions, the development of the BPODT website can be done by developing and adding information via email as shown in the following image.

Picture 7. Information past e-mail Development Website BPODT.
Source: Researcher Year 2024

The main component of successful marketing is good communication in website-based digital marketing that is always *updated* , accurate and reliable (Li, X. & Wang, 2010) . This study is also supported by previous research according to I Wayan Suartawan, et al., which states that the Godevi website from the communication dimension regarding *branding* has a destination advantage (Sanjiwani et al., 2023) . Based on this, it can be concluded that activities in developing tourism websites require good communication that is needed by users. Likewise, the BPODT website requires development to provide responsive information, one of which is developing a website by providing information features via email and others.

Transaction Dimensions

Transaction dimension has 5 ICTRT indicators where 1 indicator is available on the BPODT website, namely the web security feature. While the other 4 indicators are not available on the BPODT website such as online reservations, event ticket purchases, tourist ticket purchases, and shopping carts.

In the transaction dimension, the researcher did not develop the website because the BPODT website is a government website that does not require transactions such as online reservations, event ticket purchases, tour ticket purchases, and shopping carts. To make it easier for visitors to get information about the transaction dimension, visitors can visit the website https://tobacalderaresort.id/ to get information about online ordering.

Transaction dimensions are used to facilitate the transaction process and its reliability (Li, X. & Wang, 2010) . This study is also supported by research from Agung, et al. which states that the transaction dimension that needs to be considered is the existence of entrance tickets to tourist attractions (Mecha et al., 2019) .

Based on this, it can be concluded that activities from the transaction dimension are needed for websites that do require transportation information. However, the BPODT website, which is a government website, does not require a transaction dimension. For visitors who want information related to transactions for Lake Toba or The Kaldera, they can directly visit the website https://tobacalderaresort.id/ .

Dimensions of Relationships

The relationship dimension has 6 ICTRT indicators where 2 indicators are available on the BPODT website, namely privacy policy and personalization. While the other 4 indicators are not available on the BPODT website such as deals and discounts, shopping theme recommendations, and customer loyalty programs.

In the relationship dimension, the researcher also did not carry out development because in this dimension the author only included a link as a relationship for users to make it easier to get further information such as the existence of the trail of the king, Toba geopark, and BPODT itself on the development website which can be directly clicked and connected because of the interrelated relationships.

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The relationship dimension is very important for users to stay connected and get various information and convenience in visiting the website (Li, X. & Wang, 2010) . In addition, this study is supported by research according to Suandi and Wahyu which states that the relationship dimension for the website www.indonesia.travel is still very low (Suandi & Wahyu Winarno, 2017) Based on this, it can be concluded that activities in developing the relationship dimension on the website are important. However, the development of a website's relationship must also be based on the needs that exist when it is made. The BPODT website has other websites that support tourism activities at The Kaldera, so the relationship dimension is not developed on this website because it is adjusted to existing needs.

Technical Dimensions

The technical dimension has 7 ICTRT indicators where 5 indicators are available on the BPODT website such as links to other websites, load time, navigation, web page design, and visual appearance. While 2 indicators are not available on the BPODT website such as search engines and map sites. In developing the technical dimension, researchers did not carry out development for search engines and map sites. Technical dimensions are needed for the ease of tourism website used by users (Li, X. & Wang, 2010) . This study is supported by previous research according to Caroula which states that technical dimensions are very necessary (Charoula et al., 2014) .

Based on this, it can be concluded that technical dimensions such as load, link time to other websites, navigation, web page design, and visual appearance are very necessary and these are present on the BPODT website.

The ICTRT model developed by Li and Wang is used to evaluate the effectiveness of destination websites. This model categorizes the evaluation into five dimensions: Information, communication, transaction, relationship, and technical excellence. Information: This dimension evaluates how well the website provides relevant and comprehensive information to visitors. Includes 19 indicators from the information dimension that help tourists get what they want. Communication: The communication aspect assesses the ability of the website to facilitate communication between service providers and visitors that allows for two-way interactions. Transaction: The transaction dimension evaluates the ability of the website to support online transactions, such as hotel reservations, ticket purchases, and other services that can be booked directly through the site. Relationship: The relationship aspect focuses on the ability of the website to build and maintain long-term relationships with visitors. Technical Excellence: The technical excellence dimension assesses the technical performance of the website, such as loading speed, responsive design, and overall user experience (Li, X. & Wang, 2010) .

BPODT as the Lake Toba Authority Planning Agency has a website that according to researchers is good, but further development is needed so that the website https://www.bpodt.id/investasi/ can be much more developed to make it easier for visitors to get information. The development of this website is carried out in several dimensions that are adjusted to the needs of the BPODT website. Creation of website development https://bit.ly/3LDrsAX This is a representation of the main BPODT website. This website is used to help users get information directly. Website development is done by developing the website by creating a photo gallery, creating travel tips, creating destination facts, and adding information via email.

This is supported by previous research according to Fadli Sunandi and Wing Wahyu Winarno which states that a website developed with the ICTRT model will provide an effective display that can be used by users (Suandi & Wahyu Winarno, 2017) . In addition, this research is also supported by research from Li and Wang who created the ICTRT model for evaluating *e-tourism websites* that have a good impact on the development of tourism websites where the model can be adapted by various tourism websites (Li, X., & Wang, 2011) .

Therefore, it can be concluded that by evaluating the BPODT website system using the ICTRT model, it can help provide the information needed by users both in terms of information and communication dimensions that will help users in using the website and getting what they want quickly and accurately because the website is *user friendly.*

4. CONCLUSION

Based on the results of this study, it can be concluded that the development of the BPODT website using the ICTRT model can be implemented by considering and viewing the existing website whether each indicator of the 5 dimensions can be developed or not. The development of the ICTRT model carried out in this study is like developing a *user-friendly website* such as creating a photo gallery development, travel tips, information via email, relationships with other websites such as Trail of the Kings, Toba Geopark, and BPODT, because the development of this website is basically a website that simplifies the previous website from BPODT so that visitors get information quickly and accurately. This study has limitations because it still discusses a small scale. This study is suggested to BPODT to be able to develop the BPODT website to provide more accurate information from each dimension indicator from the ICTRT model. To further researchers to develop the BPODT ICTRT model comprehensively and can be realized well later.

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