Blockchain in the Natuna Tourism Industry: Opportunity and Challenges

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Abstract

In 2018, Natuna was designated as a National Geopark. However, the promotion of Maritime Tourism on the Natuna beaches is still inferior when compared to Bali, Bangka and Belitung. Currently, Natuna is being prepared by the regional and central governments to become a UNESCO Global Geopark. Some of the requirements that must be met are geological heritage, international recognition, management systems, geopark sites, domestic and international facilities and networks. Based on the results of the Focus Discussion Group with the Head of the Tourism and Creative Industry Office and their staff, the obstacles faced by Natuna are human resources as well as technology and data in tourism promotion. This article discusses the Blockchain application model in the Natuna tourism industry. The developed model provides convenience in storing and using data and other sources of information. This technology promises to increase transparency and security in transactions, so tourists who want to travel to Natuna don't have to worry about Blockchain bringing security and transparency to several important touchpoints. Blockchain can make booking flights and hotels more secure and transparent as responsibility spreads across the network. With blockchain, all information appearing on the network is public, reliable, and secure, achieving greater transparency and increasing consumer trust. By presenting a case study of the application of blockchain technology in Natuna tourism, the authors analyze the potential use of blockchain technology in the tourism industry and discuss topics for further research.

Keywords
Case Study, Blockchain, Natuna, Tourism

1. Introduction

The development of Natuna is in the Roadmap of Indonesia's Maritime Policy towards the Global Maritime Fulcrum (GMF), namely maritime economic development. GMF is a comprehensive economic development doctrine to improve welfare in Indonesia through economic development in the maritime domain. There are several aspects of development that must be achieved in the context of GMF, namely infrastructure, political, socio-cultural, legal, security, and economic aspects through the enforcement of Indonesian marine areas, revitalizing the marine economic sector, strengthening, and developing maritime connectivity, as well as improving the quality and quantity of human marine resources. (Mursitama et al., 2019).

Based on the presentation of the Indonesian Global Maritime Fulcrum by the Coordinating Ministry for Maritime Affairs, tourism is the main point of economic activity, but currently tourism economic development is still not optimal. Most of Indonesia's territory consists of the sea so that marine tourism has enormous potential. As much as 99.25% of Natuna's area is marine, so Natuna has great potential to be developed for marine tourism (Ying, et al., 2018). Natuna as the outermost remote and underdeveloped region (*Terluar, Terpencil dan Tertinggal* or 3T) is blessed with various potentials for the development of the Natuna economy, such as the Natuna Sea Area which is Wide and Rich in Marine Biota. Therefore, the Indonesian Geopark National Committee at the end of November 2018 determined the Natuna Area to be a National Geopark. Geopark is a management concept of sustainable development of an area (with a certain area) that integrates three natural diversities, namely geology (geodiversity), biodiversity (biodiversity) and culture (cultural diversity).

Even though the natural potential of Natuna is very rich, the people of Natuna are still not prosperous and the level of education is still low. In addition, based on the presentation of the Deputy Regent of Natuna on August 21, 2021, from the TOURISM side. Natuna Regency has potential that is not inferior to Bali, Lombok, Raja Ampat, Bunaken, Banda, Wakatobi or Derawan. Currently, Natuna is improving to become a World Geopark (Unesco Global Geopark). In addition, from the results of the FGD of the research team with the Natuna Tourism and Culture Office (Disparbud) team, Natuna tourism is the focus of the government. Through tourism, it is hoped that the economy and regional income can be increased. The concept of Natuna tourism development is MEA (Marine, Ecotourism, Archeology). Unfortunately, not many tourists know about Natuna's tourism potential

Blockchain is a distributed database consisting of a list of bundles of transactions called blocks that are attached to each other. Under normal circumstances these blocks, collectively also called distributed ledgers, are immutable once they are accepted as part of the total chain in a sophisticated non-centralized procedure. Blockchain technology is not managed by a central server but is a peer-to-peer network where decentralized nodes keep copies of the entire blockchain. (Irem ndera,∗ , Horst Treiblmaier2018). In the Indonesian tourism industry, the use of block chains is still a new thing and not all tourism places in Indonesia, especially in 3T areas (*Terdepan, Terluar, dan Tertinggal*). In addition, the Ministry of Public Works, and Public Housing (Kementerian Pekerjaan Umum dan Perumahan Rakyat /PUPR) has started the construction of the Integrated Serasan State Cross-Border Post (Pos Lintas Batas Negara /PLBN) located in Natuna Regency, Riau Islands Province. The development of the PLBN is expected to become a new center of economic growth in the border areas in supporting socio-economic activities of the community as the front porch of Indonesia, as well as a new center of economic growth in Indonesia's border areas. The integrated PLBN Serasan has a strategic value as the front porch of Indonesia because it is directly adjacent to Vietnam and Cambodia to the north and Singapore and Malaysia to the west and east. Thus, it will be easier for tourists to enter, especially from ASEAN countries. Thus, a study is needed so that tourism promotion is in line with the development of PLBN by applying Block Chain technology to Natuna tourism. In this study, researchers want to describe the opportunities and challenges of using block chains in the promotion of Natuna tourism

1.1 Objectives

The purpose of this study is to explore the opportunities and challenges of using blockchain for Natuna tourism websites to assist in promoting the tourism industry in Natuna. In addition, the desired conditions are to sharpen the website design by using block chain technology with the help of web analytics from the theory of Sharda, R., Delen, D. and Turban, E. (2020: 441). Through web analytics, the opportunities, and challenges of Natuna tourism development will be explored

2. Literature Review

One of the main benefits of the Internet in terms of demand is that information retrieval becomes transparent to consumers, thus empowering them to make better decisions. The internet allows suppliers to distribute their products directly from their own websites and on third-party online travel agents (OTAs) and metasearch engines (Irem, 2022). For example, traveloka, kayak, booking.com, expedia, and so on. The Internet has had a strong impact on the tourism industry as a whole and has spawned new reservation systems and new forms of direct interaction with potential and existing customers. A fairly recent development is the shift from e-tourism to smart tourism, which requires a shift from the digital realm to a combined digital and physical realm. (H. Treiblmaier, 2020: 2). The emergence of blockchain technology and especially the success of its most prominent application to date, the cryptocurrency Bitcoin, has sparked a lot of media attention in recent years (Irem, 2018). The blockchain technology not only through payment issues, but the tourism sector (Thees, H., Erschbamer, . & Pechlaner, H, 2020, Willie, 2019).

Blockchain is often referred to as the underlying technology for Bitcoin (Narayanan and Clark 2017). Additional features of the blockchain can be derived from its basic characteristics. One of the most important is (distributed) trust, i.e., partial replacement of trust in people or organizations with trust in systems based on blockchain technology where data is permanently recorded, and algorithms are executed automatically. However, blockchain technology cannot solve all problems related to trust. Blockchain cannot guarantee the accuracy of data, and its immutability can lead to disastrous effects if the data is incorrect, or the law is violated. (H. Treiblmaier: 6-7).

Önder (2018) research suggests on the impact of blockchain on the tourism industry, namely that blockchain technology will lead to increased disintermediation in the tourism industry. Kwok and Koh (2018) point out blockchain technology as a potential watershed for tourism development and focus primarily on its impact on small island economies. They identified six key impact areas: inventory management, credential management, digital payments, loyalty programs, identity management, and reservations & tickets. Nam et al. (2019) describes the latest trends and challenges regarding blockchain technology for smart cities and smart tourism and develops research propositions that postulate the emergence of new market structures and business models. There are other potential uses of blockchain in different areas, which may all be applied to the tourism and hospitality industry. These include having digital IDs that can replace passports and all identification-related documents such as birth certificates and driver's licenses. (Davidson et al., 2016; Dogru et al., 2018).

3. Methods

The application of Block Chain technology in the promotion of the Natuna tourism industry is on the Natuna website design. After the website has been designed and the content has been raised on the website, analyze the number of website visitors with a comparison of three-month and six-month visit data. As for designing the Natuna website, the application of Block Chain in the structure of the Natuna website consists of several blockchains (in this case content blocks) from the Natuna website.

The structure of the natuna website consists of several blockchains (in this case content blocks) from the natuna website. Block posts are used for articles that are based on the date of publication (publish date of the post) and contain news that is currently hits, or information that is temporary. Block pages are used to build menus and fixed information. Such as information on organizational structure, menus, and features from the natuna-tourism.id website, information categories etc. Block items are the most complete blocks because they do not only use written ones but also have a map for each article they have. If the three are combined as follows (Figure 1)
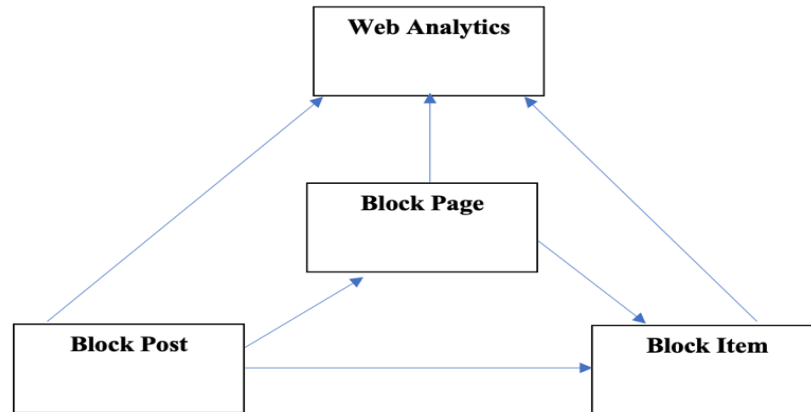
Figure 1: Website structure https://natuna-tourism.id/

After the website visitor data is obtained, the analysis uses the theory of Sharda, R., Delen, D. and Turban, E. (2020: 441)
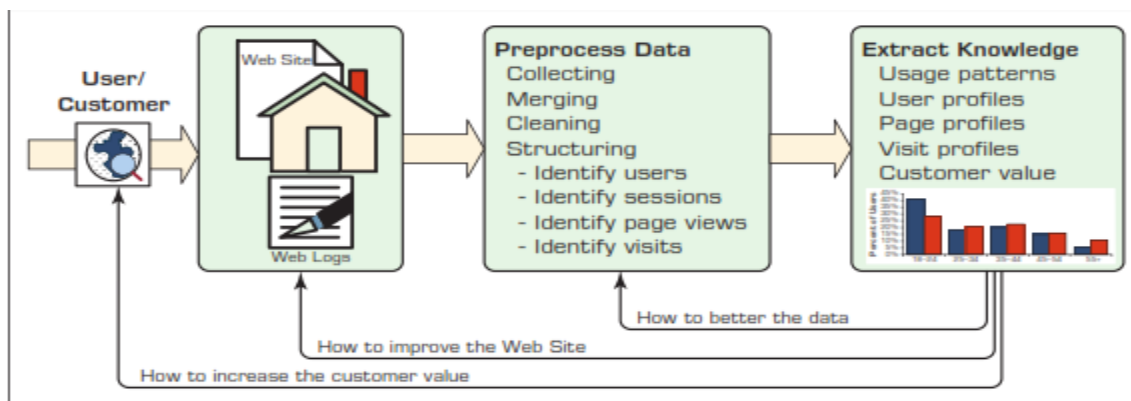

Figure 2. Analytical Web Model
Source: Sharda, R., Delen, D. and Turban, E. (2020: 441)

According to this theory, web data analysis begins with the following steps Sharda, R., Delen, D. and Turban, E. (2020: 442-443): (Figure 2)

1. Page View
Average page views per visitor." If someone visits your website and doesn't see many pages, then your website may have a design or structure issue.
2. Time on Site
A fundamental measure of visitor interaction with your website. Generally, the longer someone spends on your website, the better. That can mean they carefully review your content, take advantage of the interactive components you have, and build the right decision to buy, respond to, or take the next step you provide.
3. New visitor
If you're working to increase visibility, you'll want to study trends in your new visitor data. Analytics identifies all visitors as new or returning.
4. Returning visitor
If you are involved in a loyalty program or offer a product that has a long buying cycle, then returning visitor data will help you measure progress in this area.

4. Data Collection

The data collection carried out in writing this article is data per three months on the website https://natuna-tourism.id/. The data collected comes from Page View, Top Page View, Geographical Website Visitors, Browsers Used, Pages Accessed. Device or Gadget Used and origin of access.

5. Results and Discussion

5.1 Numerical Results
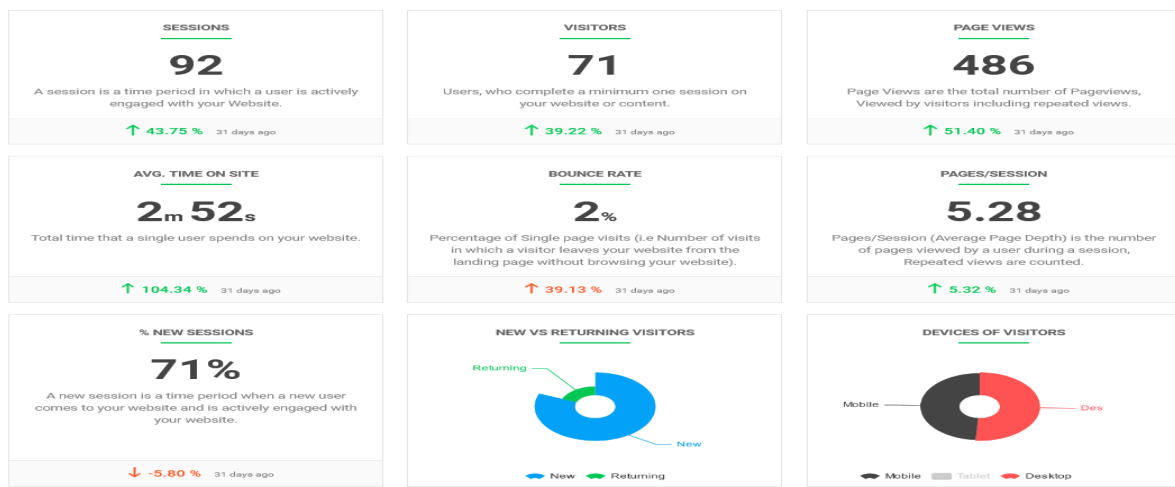
Figure 3 Website Visitors

There are 71 visitors to natuna-toursm-id for 3 months, of which 71 visitors opened 486 pages when they accessed the website. The average length of time visitors interact with the web is 2 minutes 52 seconds or almost 3 minutes. Based on the gadgets used by visitors, it is around 50% for mobile and 50% for desktop. The profile of new visitors is more than visitors who return to the website (Figures 3 & 4)

#	Title	Views	Avg. Time	Bounce Rate
1	Natuna Tourism	Natuna: Laut Sakti Rantau Bertuah	111	51s	0%
2	Natuna Dive Resort	Natuna Tourism	44	50s	7%
3	Kekah	Natuna Tourism	21	45s	25%
4	Geopark Tourism	Natuna Tourism	18	1m 18s	0%
5	Maritime Tours	Natuna Tourism	16	7s	0%

Figure 4 Webpages visited

Of the top 5 pages of all Natuna website pages, the main page was accessed 111 times, with an average access time of 51 seconds (almost 1 minute). However, geopark tourism has the highest average time of 1 minute 18 seconds. But it has the highest bounce rate of 25% compared to others

Top countries	Visitors	Top cities	Visitors
Indonesia	80	Batam	22
United States	7	Jakarta	17
Singapore	2	Pekanbaru	8
Germany	1	Prineville	4
Japan	1	Makassar	3

Figure 5 Origin of Website Visitors

The origin of visitors from Indonesia still dominates, compared to other countries. If you look at the city of origin of visitors, Batam is more dominant than Jakarta and other cities. It means that local tourists are interested in visiting natuna-tourism.id. (Figure 5)

Tech Stats

Browsers statistics	Visits	Operating system statistics	Visits	Mobile device statistics	Visits
Chrome Android	26	Windows 10	37	Apple iPhone	12
Edge Windows	17	Android 11	14	Xiaomi Redmi Note 5	3
Chrome Windows	11	Macintosh Intel 10.15	8	Huawei JSN-L22	2
Firefox Windows	10	Android 10	6	OPPO CPH2219	2
Safari iOS	9	iOS 15.5	6	Samsung SM-G998B	2

Top Web Browsers, Operating Systems, and Mobile Devices

Figure 6 Devices or Gadgets Used

The operating system used to access the highest natuna-tourism.id is windows, meaning 37 visitors use the desktop. Android chrome browser dominates compared to other browsers. Apple iPhone mobile device statistics are the highest compared to others. When mobile device statistics and chrome browser are combined or both use mobile devices, the comparison of desktop and android values is not much different. This is the same as the picture in Figure 6 device visitor

Figure 7 Access Origin

In Figure 7, a total of 40 visitors came from writing the website address directly. While visitors who searched from the google search engine were 27 people and the Bing search engine was 15 people and 2 people were yahoo. The rest comes from referrals or information from Facebook.

5.2 Graphical Results

Figure 8. Visitor Graph and Page View

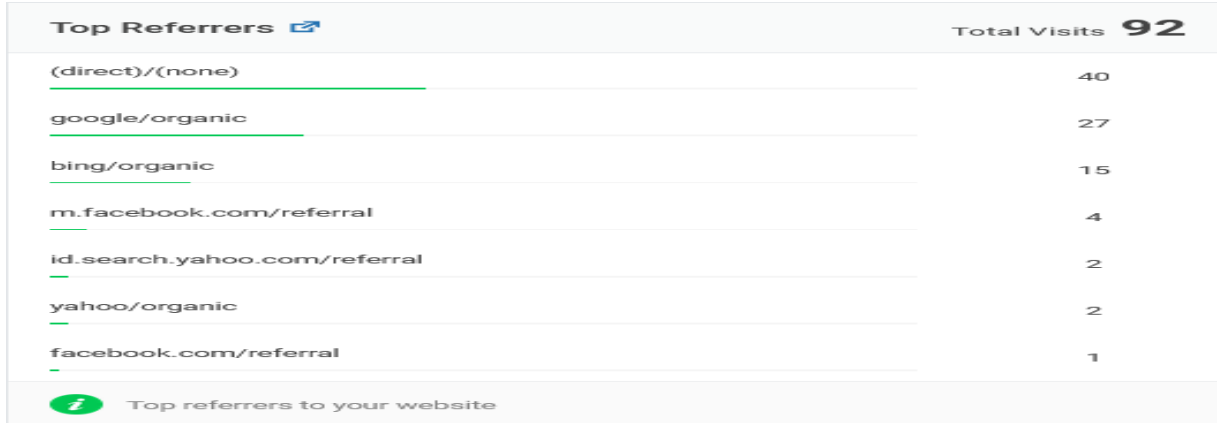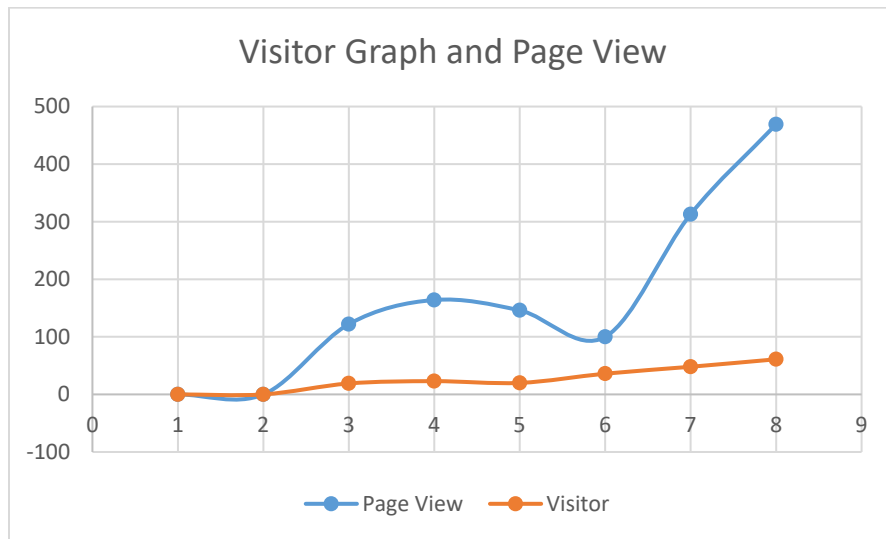The visitor graph began to appear in the third month with the number of visitors in the tens of visitors and the number of page views above 100 but less than 200. The number of visitors was quite stable until the 5th month, but the number of page views increased in the fourth month the number of page views increased. It decreased again in 6 months, but the number of visitors began to increase or as a turning point of page views and visitors. So that in the next month there is a high increase (Figure 8)

5.3 Proposed Improvements

From the data presented in the previous discussion, it can be seen that there are still opportunities for Natuna tourism, namely: (1) There are still many who want to know about Natuna tourism, both from local tourists and foreign tourists; (2) Natuna tourism is still an attraction and needs to be promoted by adding content on the website; (3) The challenges are: (1) How to promote Natuna tourism more broadly so that more people enter the website. (2) How to involve all stakeholders who have an interest in the development of Natuna tourism. From the website content, there are also several things that need attention and become additional information on the website, namely: (1) The need for

information about booking airline tickets, boat tickets to local airports and seaports, as well as access to local hotels that cannot be booked online. (2) Information on boat rental fees for island hopping, as well as hobby tourism costs which include kayaking/canoeing, snorkeling, diving, fishing and so on, (3) Adding video material because in general, visitors prefer to watch videos rather than reading because they are more attractive for promotions from the visual side compared to the written side. (4) There is a comment section for tourists who have been to Natuna regarding Natuna tourism, to increase promotion.

6. Conclusion

The number of visits to the Natuna tourism website is still low because of the limited material from the website. In addition, there are no videos uploaded to the website. We recommend that in making website materials and managing websites, it is also advisable to involve local tourism actors so that they can enrich website content. In addition, there is also a need for a Focus Discussion Group with stakeholders involved in the promotion of Natuna tourism to provide input on the website that is being developed.

Acknowledgements

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