Digitalization Methods from Scratch Nature towards Smart Tourism Village; Lessons from Tanjung Bunga Samosir, Indonesia

Diaz Pranita¹, Deni Danial Kesah₂*, Marsdenia³

¹Tourism Business Management, Program Pendidikan Vokasi, Universitas Indonesia
²Creative Business, Program Pendidikan Vokasi, Universitas Indonesia
³Accounting, Program Pendidikan Vokasi, Universitas Indonesia

* d.danial@ui.ac.id

Abstract. This paper exposed based on a concern about the very good tourism potential, but still not managed under market conditions. The development and management of digital tourism has become a building block for a competitive tourism destination, including the development of a tourist village. Super-priority tourism destination development, must employ a smart concept in ICT and eco-tourism development. Expert Judgment, through a number of focus groups, is used to formulate the best-adapted digital transformation strategy in the tourism village, using qualitative methods and Focus Group Discussion on Village Stakeholders. The results show that building blocks for smart tourism village development are the digital skills of stakeholders as well as financial, digital infrastructure and mentoring support, Tanjung Bunga Village should follow four stages of development: increasing digital literacy, building e-business, setting up e-commerce and building up e-commerce.

1. Introduction

Village is the main and unique thing offered in rural tourism packages. Ideally, rural tourism functions as a small-scale village, has a traditional character, and is organically and slowly controlled by the village community. The implementation of these new activities not only contributes to the acceleration of business activities, but also increasing economic growth, increasing social inclusion and developing cultural and social activities that form the basis of regional development [4]. The tourism industry has undergone a profound transformation as a result of digital technology, revolutionizing tourism businesses, products and experiences, business ecosystems, and tourist destinations [5]. The roles, relationships, and competencies of producers and consumers are changing as a result of digitalization. The development of digital platforms also increases the variety and volume of products, services and tourism experiences and is able to increase transaction speed, market awareness and market feedback. The building blocks for smart tourism destination are stakeholders’ digital literacy, e-businesses, e-commerce, and smart ecosystem.

The tourism village concept is a method of integrating attractions, lodging, and supporting facilities within a social structure that incorporates procedures and traditions. It is actually a small tourist destination. In the era of industry 4.0 and Society 5.0, the importance of the use of digital technology in tourism development, including tourism villages [3]. Tourists only need to rely on digital platforms to search, order and even make payments. Agricultural and rural areas currently have a number of tasks and functions that are seen as economic diversification in rural areas, not only in agricultural production, but also in the development of tourism, entrepreneurship and community.
economic activities that need to be based on taking into account the needs of tourists and real opportunities for service provision in rural areas [1]. Not only does ICT enable customers to identify, personalize, and purchase tourist products, but it also aids in the globalization of the tourism industry by providing efficient tools for tourism agents to develop and distribute their offer globally. Consequently, digitalization, will change business model, provide real time revenue and value producing opportunities for tourism village to become a digital business, workplace, supply chain; transform business process and create digital environment [20], that should be planned and implemented in a careful and comprehensive manner. Currently, digital literacy of local people both in Tanjung Bunga Village and Lake Toba is still low. The digital support infrastructure is also limited. Therefore, the objective of this paper is to formulate smart tourism road map and digitalization strategy for Tanjung Bunga Village.

It is a tourism village whose main attractions integrate agricultural, forestry and farming covered in sustainable tourism development. Sustainable agrosylvopartural tourism village development concept will adapt [24] sustainable tourism development model, which considers aspects of sustainability; local wisdom; experience focus, and social welfare. Every tourism development in Lake Toba area should be treated as a global competition ready destination, tourism stakeholders in Tanjung Bunga decide that smart tourism destination will be the target of the destination development. Smart destinations are situation-based optimizations built on the foundation of seamless connections between high-quality information technology and physical infrastructure via sensors, smart devices, and big data management within a specific geographic area. [12]. It is based on consideration that tourism is an information intensive sector, associated with extensive and dynamic information search, in order to make and compare choices [20]. This paper describes the journey of empowerment process to Tourism villages, from zero conservatism to initiate digitalization in term concept of digital literacy, e-business, e-commerce and Smart tourism destination;

2. Methodology

This study develops a digitalization strategy with the assistance of experts from a diverse group of individuals who possess subject-matter, technical, geographic, linguistic, social, and cultural intelligence. These experts’ perspectives bolster strategy analysis and effectively inform decision-making about digitalization strategies [23]. Experts fill in knowledge gaps in existing data. Policy experts disentangle stakeholders’ preferences and capacities; in doing so, they mitigate excessive certainty and may even increase uncertainty strategically in ways that decision makers and analysts find beneficial [25]. When experts express their opinions in a decision-making context, their opinions become expert judgments [2]. Expert judgment is employed in order to develop smart tourism strategy as follows:

![Figure 1. Stages Expert Judgment](Source: Benini, A., P. Chataigner, N. Noumri, N. Parham, J. Sweeney and L. Tax (2017))

3. Result and Discussion

Communication of findings, the digitalization strategy is carried out through a seminar that include stakeholders and related public with the development of Tanjung Bunga Village or Lake Toba as tourist destination, locally, regionally and nationally. This activity will become a foundation and commitment to implement smart tourism in Tanjung Bunga Village. With multi perspectives Digital literacy encompasses a variety of digital reading and writing techniques applied to a variety of media types, including words, texts, visual displays, motion graphics, audio, video, and multimodal forms. Similarly to how literate individuals can negotiate print text through reading and writing, literate technology users can consume and create digital compositions. [6].
Digital literacy is defined as the ability to access—knowing about and utilizing existing organizational and classification schemes; integrate—interpreting and representing information, including summarizing, comparing, and contrasting; evaluate—making judgments about the quality, relevance, usefulness, and efficiency of information; and create—generating information. Digital literacy encompasses the following components: information retrieval and evaluation; creation; communication; collaboration; and online safety [22].

3.1 E-business

Tourism is an information-based industry, and a tourism product is a source of confidence. Tourists must leave their normal environment; they must move in order to consume the product [16]. As a result, the product cannot be tested and inspected in advance [17]. At the time of decision-making, all that is available is a product description and an abstract model of the product [11]. Utilizing digital electronic methods and tools to collect, process, share, and distribute information and services across the tourism value chain can provide a competitive edge [13]. Identifying local value chain in Tanjung Bunga Village is an important stage to develop smart tourism village. The Figure below shows Tanjung Bunga Village identification in order to create e-business that support the smart tourism village development.

![Figure 2. Tourism Village Value Chain](Sources : Expert Judgement, 2020)

Each element in Tanjung Bunga Tourism Village’s value chains must be included in the tourism e-business program and create or utilize digital platform or other digital media so that the stakeholders can promote their products online.

3.2 E-commerce

E-commerce or stands for electronic commerce, which is all trading activities, both buying and selling made through electronic networks, including the internet network. This buying and selling activity can be very broad, both buying and selling of goods and services, as well as transferring data to funds electronically [14]. E-commerce activities are divided into several types according to the nature and also the transaction relationships that occur between sellers and buyers [18].

E-business identification then grouped into those that commercial and those information based. E-commerce focuses on marketing and selling the products electronically. [27] It will be designed in a web and or application based as a market place between sellers and buyers. Basically, e-commerce is described as an activity that uses the internet and also the Web in a business transaction [27]. Formally, this digital activity allows for a commercial transaction involving companies or organizations with Individuals. [19]

3.3 Smart Tourism Requirement

Travelers often visit numerous places, destinations, and attractions, reflecting the proliferation of multi-attraction travel, which has an effect on ICT growth by increasing the need for ICT enhancement and stimulating the creation of smart destinations [8]. To support Ewing et al's theory, Gunn explained that the utility of ICT development and smart destinations is primarily dependent on connecting various platforms, such as attractions, places, or destinations, and that the appeal of ICT development and smart destinations has risen in lockstep with the popularity of multi-attraction travel[12]. Because of the the prevalence of multi-attraction travel as a result of technical advancements that promote information dissemination and navigation, destinations that rely solely on a single attraction will fail to compete with destinations that capitalize on the complementary strengths offered by diverse attractions [7].
Since a smart tourism destination provides new personalized experiences extracted from real-time data and the combination of ICT and the physical world, even the same attraction will provide a unique experience to each visitor [21]. According to Koo [15], the building blocks for smart tourism are The five basic requirement for smart tourism development according to the experts, and they are presented in Table as follows:

| Aspects                  | Program                                                                 | Success Indicators                                                                 |
|--------------------------|-------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Digital Skills           | a) Collecting and retrieving information                               | a) Able to use good quality information                                           |
|                          | b) Understanding the importance to be exist in social media and digital marketing platform | b) Able to market product through social media and other marketing platform       |
|                          | c) Creating text, visual display, motion graphic, audio, video and multi modal forms. | c) Able to create, design, distribute and utilize digital information             |
|                          | d) Integrate, interpret and representing information by adapting, applying, designing and authoring information | d) Able to manage digital information for business and building good image        |
|                          | e) Utilize collaboration and sharing resource platform                  | e) Able to use and create digital business platform                               |
| Financial Support        | a) Get adequate sustainable financial support to materialize the program | a) Substantial financial aid or support from multi parties                        |
|                          | b) Create integrated business plan                                      | b) Attractive business package/offering                                           |
| Digital Infrastructure   | a) Propose digital infrastructure support from parties                 | a) Good 4G infrastructure                                                         |
|                          | b) Provide adequate digital equipment                                   | b) Laptops, smart phone, model, etc                                               |
|                          | c) Build digital business platform and ecosystem                        | c) User friendly digital business platform                                          |
| Mentoring Support        | a) Assist local communities to develop digital skills                   | a) Good digital literacy human capital                                            |
|                          | b) Assist local communities to perform digital business                 | b) Functioning digital business platform that integrate all stakeholders          |
| Policy Support           | a) Propose supporting policy from central and regional government      | a) Support from local and central government                                       |
|                          | b) Collaborate with local government to develop smart tourism           | b) Smart tourism village program                                                  |

Sources: Authors data collections, 2020

In order to build those comparative and competitive advantage, Tanjung Bunga tourism village will develop intelligent smart technology and system which will utilize information technology to sustain and promote tourism resources (such as culture and history, nature, mix of activities, superstructure, special events), set up business ecosystem, conduct marketing and deliver services [26]. Information technology that will support tourism development and coordination [9], Tourism village formation system that will be carried out by developing a system of values and basic norms such as 3 A Attractiveness, Amenities and Accessibility [28]:[29].
4. Conclusion

The implementation of tourism Digitalization and community capacity building program activities in Tanjung Bunga Village, Pintu Pohan Meranti District, is included in community empowerment activities based on the content of sustainable tourism development. A tourism village cannot be developed overnight; the community, as a key actor, must develop a tourist village with a defined concept. Stakeholders will gradually delegate more authority and responsibility to each village and its fostered partners, who will consider their village's potential, as well as the development of agroforestry areas, in overcoming critical areas in the Lake Toba area. Danau Toba stakeholders will serve as policymakers, regulators of basic campaign provisions, program sustainability, and community assistance, as well as facilitators in fostering an environment conducive to the planned tourism village's growth.

Acknowledgement

We would like to express our gratitude to anonymous referees who have already contributed new perspectives and fruitful recommendations to help us complete this paper. This research is funded in part by a PUTI Prosiding UI Grant and PJT 1.

References

[1] H. Balslev Clausen and S. Gyimóthy, “Seizing community participation in sustainable development: Pueblos Mágicos of Mexico,” J. Clean. Prod., vol. 111, pp. 318–326, 2016, doi: 10.1016/j.jclepro.2015.01.084.
[2] A. Benini, P. Chataigner, N. Noumri, N. Parham, J. Sweeney, and L. Tax, “Expert Judgment: The use of expert judgment in humanitarian analysis - Theory, methods and applications,” Assess. Capacit. Proj. - ACAPS, no. August, 2017.
[3] P. M. Burns, “TOURISM PLANNING A Third Way?,” vol. 31, no. 1, pp. 24–43, 2004, doi: 10.1016/j.annals.2003.08.001.
[4] K. Castro-Arce and F. Vanclay, “Transformative social innovation for sustainable rural development: An analytical framework to assist community-based initiatives,” J. Rural Stud., vol. 74, no. January 2019, pp. 45–54, 2020, doi: 10.1016/j.jrurstud.2019.11.010.
[5] M. Chaves, T. Macintyre, G. Verschoor, and A. E. J. Wals, “Radical ruralities in practice: Negotiating buen vivir in a Colombian network of sustainability,” J. Rural Stud., vol. 59, pp. 153–162, 2018, doi: 10.1016/j.jrurstud.2017.02.007.
[6] N. C. Chulmo Koo, Seunghun Shin, Ulrike Gretzel, William Cannon Hunter, “Conceptualization of Smart Tourism Destination Competitiveness,” Asia Pacific J. Inf. Syst., vol. 26, no. 4, pp. 561–576, 2016, doi: http://dx.doi.org/10.14329/apjis.2016.26.4.561.
[7] I. Condratov, “E-Tourism: Concept and Evolution,” EcoForum, vol. 2, no. 1, p. 10, 2013.
[8] C. Currie and P. Falconer, “Maintaining sustainable island destinations in Scotland: The role of the transport-tourism relationship,” J. Destin. Mark. Manag., vol. 3, no. 3, pp. 162–172, 2014, doi: 10.1016/j.jdmm.2013.10.005.
[9] E. & P. Dredge, D., Phi, G., Mahadevan, R., Meehan, “Digitalisation in Tourism: In-depth Analysis of Challenges and Opportunities.,” Virtual Tour. Obs., p. 35, 2018.
[10] E. D. A. N. E-commerce, “Membangun Strategi E-Bisnis ( terjemahan Canada’s Business and Consumer Site,” vol. 3, no. 3, pp. 66–69, 2009.
[11] J. F. Elisabeth Roberts, Brett Anne Anderson , Sarah Skerratt, “A review of the rural-digital policy agenda from a community resilience perspective.”
[12] J. F. Elisabeth Roberts, Brett Anne Anderson, Sarah Skerratt, “A review of the rural-digital policy agenda from a community resilience perspective Title,” J. Rural Stud., vol. 54, pp. 372–385, 2017, doi: http://dx.doi.org/10.1016/j.jrurstud.2016.03.001.
[13] F. Gobattoni, R. Pelorosso, A. Leone, and M. N. Ripa, “Sustainable rural development: The role of traditional activities in Central Italy,” Land use policy, vol. 48, no. 2015, pp. 412–427, 2015, doi: 10.1016/j.landusepol.2015.06.013.
[14] S. Graham, “Coordinating invasive plant management among conservation and rural
stakeholders,” *Land use policy*, vol. 81, no. October 2018, pp. 247–255, 2019, doi: 10.1016/j.landusepol.2018.10.043.

[15] C. Haven-Tang and D. Sedgley, “Partnership working in enhancing the destination brand of rural areas: A case study of Made in Monmouthshire, Wales, UK,” *J. Destin. Mark. Manag.*, vol. 3, no. 1, pp. 59–67, 2014, doi: 10.1016/j.jdmm.2013.12.001.

[16] S. Istv and D. Iskola, “TURISZTIKAI TERMÉKEK,” pp. 3–10, 2014.

[17] J. Laing, F. Wheeler, K. Reeves, and W. Frost, “Assessing the experiential value of heritage assets: A case study of a Chinese heritage precinct, Bendigo, Australia,” *Tour. Manag.*, vol. 40, pp. 180–192, 2014, doi: 10.1016/j.tourman.2013.06.004.

[18] S. Lucrezi et al., “Scuba diving tourism systems and sustainability: Perceptions by the scuba diving industry in two Marine Protected Areas,” *Tour. Manag.*, vol. 59, pp. 385–403, 2017, doi: 10.1016/j.tourman.2016.09.004.

[19] N. G. McGehee, “Oppression, emancipation, and volunteer tourism. Research Propositions,” *Ann. Tour. Res.*, vol. 39, no. 1, pp. 84–107, 2012, doi: 10.1016/j.annals.2011.05.001.

[20] R. Morén-Alegret, S. Fatorić, D. Wladyka, A. Mas-Palacios, and M. L. Fonseca, “Challenges in achieving sustainability in Iberian rural areas and small towns: Exploring immigrant stakeholders’ perceptions in Alentejo, Portugal, and Empordà, Spain,” *J. Rural Stud.*, vol. 64, no. November 2017, pp. 253–266, 2018, doi: 10.1016/j.jrurstud.2018.05.005.

[21] M. Novelli and C. Nibigira, “TOURISM IN A POST-CONFLICT SITUATION OF FRAGILITY,” *Ann. Tour. Res.*, vol. 39, no. 3, pp. 1446–1469, 2012, doi: 10.1016/j.annals.2012.03.003.

[22] R. Nunkoo, “Governance and sustainable tourism: What is the role of trust, power and social capital?,” *J. Destin. Mark. Manag.*, vol. 6, no. 4, pp. 277–285, 2017, doi: 10.1016/j.jdmm.2017.10.003.

[23] D. Pranita, “Digitalization: The Way to Tourism Destination’s Competitive Advantage (Case Study of Indonesia Marine Tourism),” *KnE Soc. Sci.*, vol. 3, no. 11, p. 243, 2018, doi: 10.18502/kss.v3i11.2763.

[24] R. Richter, “Rural social enterprises as embedded intermediaries: The innovative power of connecting rural communities with supra-regional networks,” *J. Rural Stud.*, vol. 70, no. December 2017, pp. 179–187, 2019, doi: 10.1016/j.jrurstud.2017.12.005.

[25] G. Saxena and B. Ilbery, “Developing integrated rural tourism: Actor practices in the English/Welsh border,” *J. Rural Stud.*, vol. 26, no. 3, pp. 260–271, 2010, doi: 10.1016/j.jrurstud.2009.12.001.

[26] L. M. Slade and B. Kalangahoe, “Dynamite fishing in Tanzania,” *Mar. Pollut. Bull.*, vol. 101, no. 2, pp. 491–496, 2015, doi: 10.1016/j.marpolbul.2015.08.025.

[27] J. B. Son, S. S. Park, and M. Park, “Digital literacy of language learners in two different contexts,” *JALT CALL J.*, vol. 13, no. 2, pp. 77–96, 2017, doi: 10.29140/jaltcall.v13n2.213.

[28] M. Wu, D. D. Kesa, and C.-J. Ko, “Organisational power, cohesiveness and culture of Taiwan’s cosmetology industry,” *Asian J. Bus. Account.*, vol. 12, no. 2, 2019, doi: 10.22452/ajba.vol12no2.8.

[29] S. Xu, C. Barbieri, D. Anderson, Y. Leung, and S. Rozier-rich, “Residents’ perceptions of wine tourism development,” *Tour. Manag.*, vol. 55, pp. 276–286, 2016, doi: 10.1016/j.tourman.2016.02.016.