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Development of Village Information System Website as A Strategy For Increasing The Tourism Experience in Sindangresmi Village

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ABSTRACT

Tourism is an important function in increasing the regional economy. Sindangresmi Village, located in Central Jampang, has a unique cultural heritage, natural landscapes, and culture attractive to tourists. Apart from the public administration problems they face, there are problems in the tourism sector. Natural tourism is less well-known to people who live outside Sindangresmi village. This research was carried out because of requests from residents to help introduce nature tourism in their places. For this reason, one solution can be used, namely digitalization. Digitalization systems can facilitate the involvement and empowerment of networks in tourism development. Online networks and social media companies can serve as a channel of communication for residents, enabling them to share their stories, traditions, and entrepreneurship with tourists. This virtual connection fosters experiences of satisfaction and encourages sustainable tourism practices that maintain the cultural heritage and tourism of the village. The digitization of tourism provides a wide opportunity for Sindangresmi Village to enhance its tourism experience. By leveraging digital advertising and marketing techniques, immersive technologies, intelligent control structures, and internet engagement systems, villages can attract more visitors and enhance the tourism experience. Using digitalization is important for Sindangresmi Village to develop a dynamic tourism aspect while maintaining its distinctive identity and heritage. in the future, it is hoped that there will be a development of a solution where visitors can order tickets online, so they don't have to queue to buy tickets on the spot.

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1. INTRODUCTION

At present the diversification of the tourism industry influences various aspects that are actual in the new world of technology and new perspectives in digitalization. At present, digitalization is a strategic development priority in many countries. Developing countries play a key role in tourism development; Strong tourism spending reflects increased connectivity, a global increase to come[1]**.** In terms of profitability, this industry ranks third in the world after the oil and automotive industries. The President of the Republic of Kazakhstan, N. Nazarbayev, in his annual traditional Address to the Kazakh Nation on 5 October 2018, “Special attention should be paid to the development of inbound and domestic tourism in order to exploit our rich natural and cultural potential. The government needs to adopt sectoral state programs within a short period of time"[2]. It is important and necessary for us to acquire digital knowledge and become modern information

technology in order to achieve development. This allows us to take the shortest path to the climb. Therefore, an active transition towards a digital economy will be one of our top priorities for the next 5 years. Digital technology not only improves product and service quality but also reduces overhead costs[3]. The role of technology and digitalization in helping countries, industries, and organizations to overcome difficult challenges is very important [4] 'Digitalization' over the years has increased significantly [5], and this involves using digital technology to change business models to create more efficient and profitable processes and create further value-generating opportunities. Perhaps most importantly, the transition towards digitization has changed the way companies analyze market information, process their delivery, and interact with their customers[6]. Even so, digitalization has recently gained a more general meaning in relation to other forms of advanced technology, such as the case of intelligent digital robots [7].

Digitalization is being increasingly used by organizations to create and deliver value to people [8]. Mark creation involves creating a product or service and the value proposition (that is, unique features) that go with it [9]. For example, retailers use mobile apps to enhance the shopping experience offered to customers, meanwhile, Apps are essential in finding information about customer purchases to tailor subsequent product offerings. Value delivery involves the channels (that is, marketing, sales, and distribution) that organizations use to promote their products and make them available to consumers. For example, digital platforms such as eBay and Airbnb enable direct interaction between providers and customers and are thus the main channels for searching for goods and/or services [10].

In Sindangresmi village, apart from the public administration problems they face, there are problems in the tourism sector. Natural tourism is less well known to people who live outside Sindangresmi village, even though the natural wealth that this village has can help residents and can increase village income as well. The solution offered is to make Sindangresmi Village natural tourism digital so that it becomes a strategy to improve visitor experience and introduce existing tourist attractions to the general public. Digitalization offers various opportunities for tourism destinations. Through virtual advertising and marketing techniques, destinations can reach a wider audience and create compelling narratives that showcase their unique offerings. Immersive technologies, such as websites, allow tourists to engage with destinations more interactive and immersively, allowing them to preview attractions and experiences before visiting.

2. METHOD

The target of digitizing tourism is to disseminate information about existing tourism in Sindangresmi Village. Through the tourism digitization website, it is hoped that it can increase the interest of investors and visitors to come to tourism in the Sindangresmi village so that it can increase the economic factors of the village and residents around tourist attractions.

using the waterfall method to find out what things need to be done to solve the problems experienced by clients. The waterfall method is a traditional software development methodology. This method is one of the oldest and most straightforward methods for software development and project management. This model follows a sequential structure, with each phase of the development process building on the results from the previous phase.

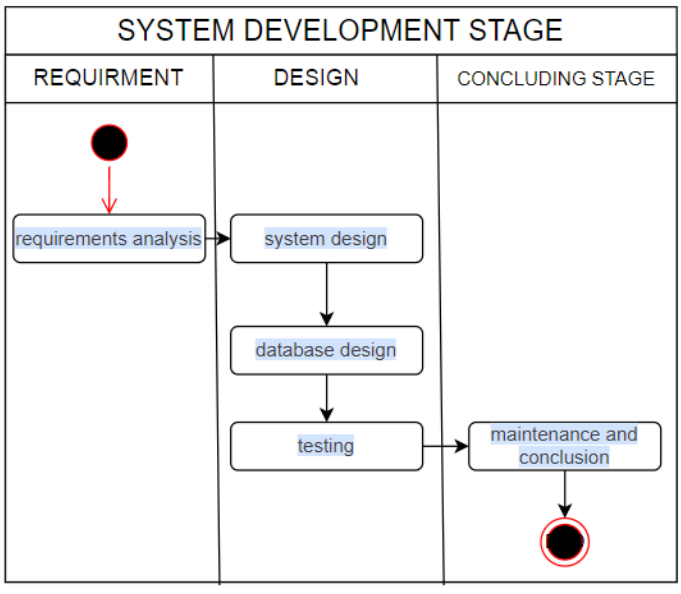


Figure 1. Waterfall Methods

Figure 1 explains how the research method is carried out. first, analyze the needs of the village. the second makes system design, required data, and site design. The third or closing stage is to find conclusions that are obtained after carrying out all the stages

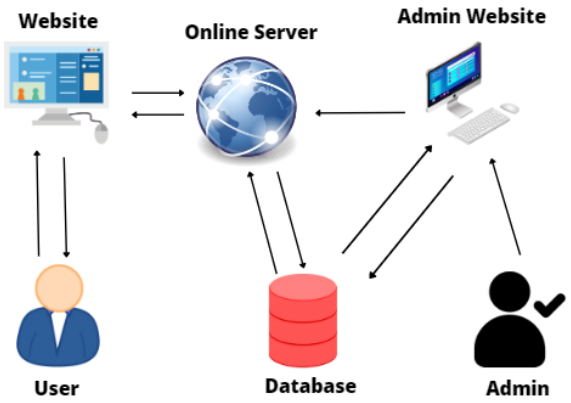


Figure 2. Main Architecture

Figure 2 explains the users listed are the public in the village of Sindangresmi. They have access to enter and use the various services available on the village information system website. For the public, they can access the information center on the homepage and access the village tourism page.

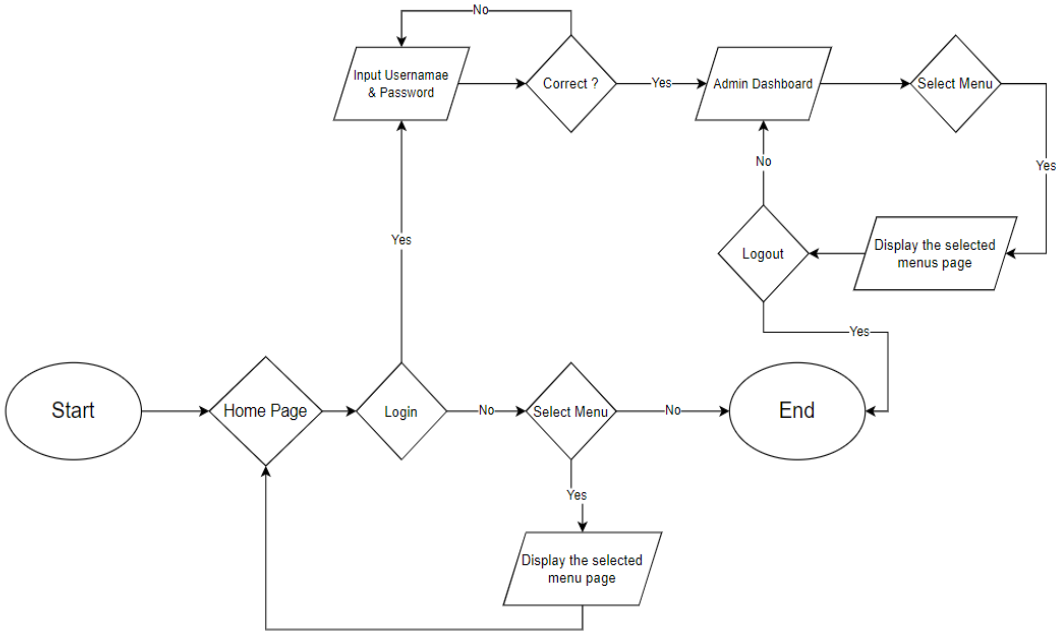


Figure 3. Flowchart

Figure 3 is a flowchart used. the system will run and will display the home page, users are divided into 2 namely general users and admins, if the user is admin., then you must log in first. after that it will be directed to the dashboard page for the admin, here they can access all the menus available on the admin page. if they want to log out, they will be redirected back to the home page of the site. while general users start on the home page, they can choose to open whichever menu they want. when general users don't want to select any menu, they can close the site page and the system will stop.

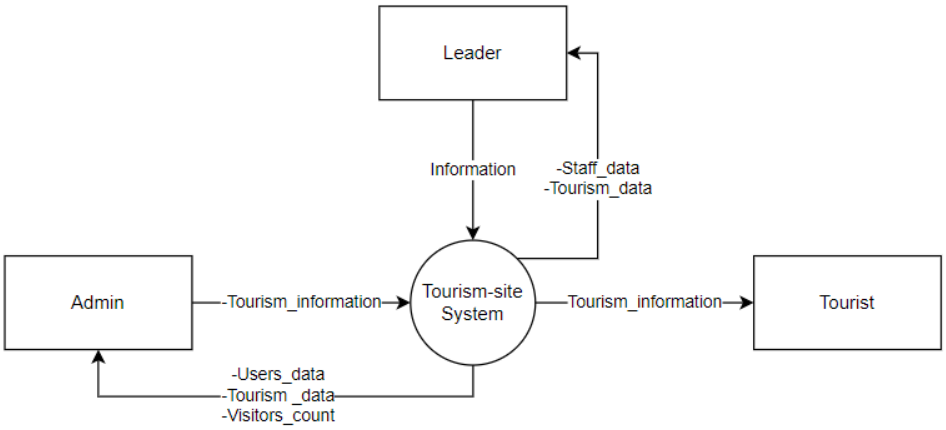


Figure 4. Data Flow Diagrams

Figure 4 is a data flow diagram. The data flow contained in this tourist site system is all tourist data and staff data will be sent to the chairman and the chairman will send data in the form of information to the main system. From the main system all user data, tourist data, and visitor data will be sent to the admin. from the admin, the data that will be sent back to the main page is tourist information. this information data will be sent to visitors who access this site in the form of image attachments or other displays.

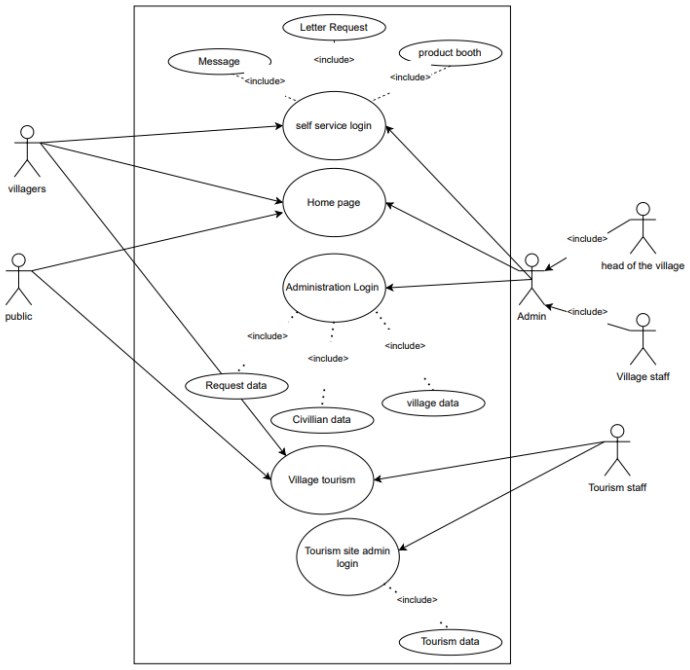


Figure 5. Use Case Diagrams

Figure 5 is Use Case Diagram where all users can access the village tourism and information center homepage. The people of Sindangresmi village can access self-service, including administrative services such as requesting letters, writing messages to officials, and product stalls. The village head and village staff are part of the admin of this system where they can access all information about the village of Sindangresmi and can follow up on services from independent services. For the village tourism admin who can access all the data, only the staff appointed to be the head of tourism affairs and the staff who are given responsibility for managing existing data.

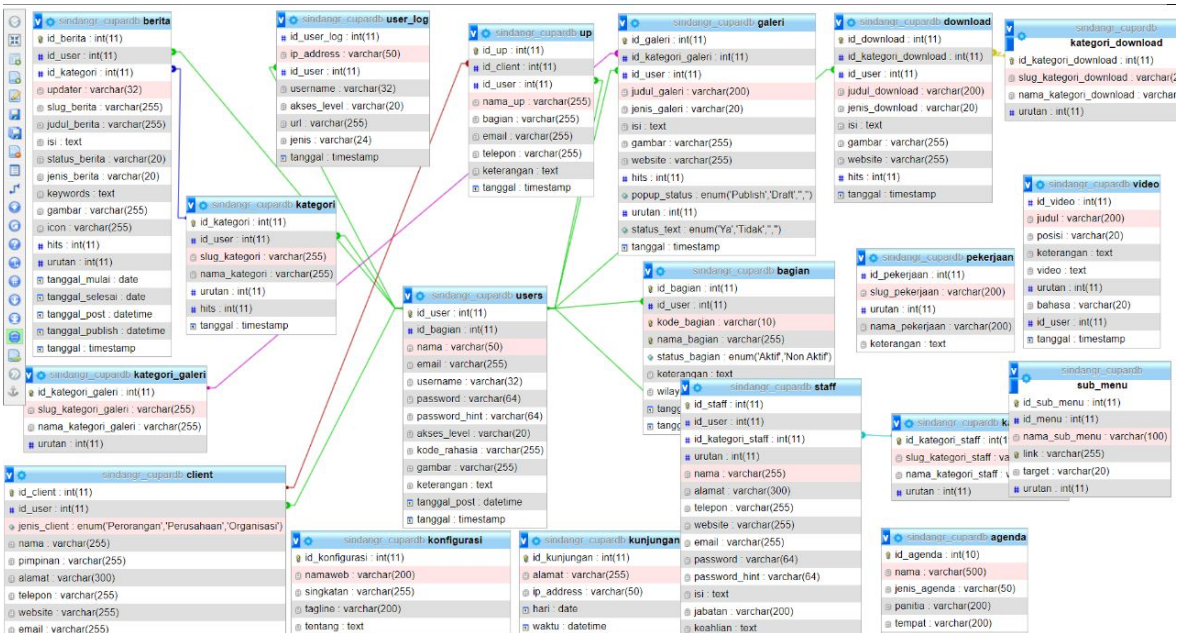


Figure 6. Entity Relationship Diagrams

Figure 6 is the entity relationship diagrams that show the primary key relationships from tables in the central database with the same foreign keys in other tables. This is done to prevent the problem of multiple data inputs from happening. The primary key for entire diagrams is id_user which that id_user contains in most of the table present. The foreign key there is id_client, id_berita, id_kategori,_id_kategori_galeri, etc.

3. RESULTS AND DISCUSSION

3.1 Implementation

3.1.1 Village Home Page

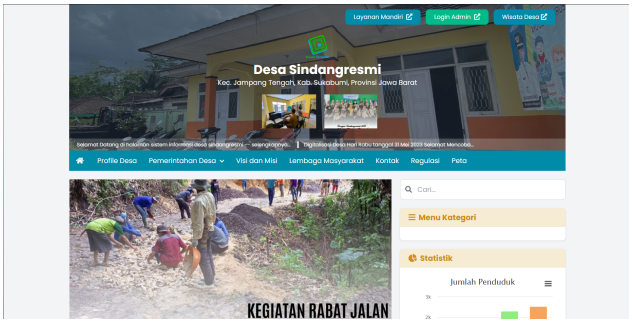


Figure 7. Village Home Page

Figure 7 is the homepage of the main website where there is all the information available and managed by the admin.

3.1.2 Tourism-site

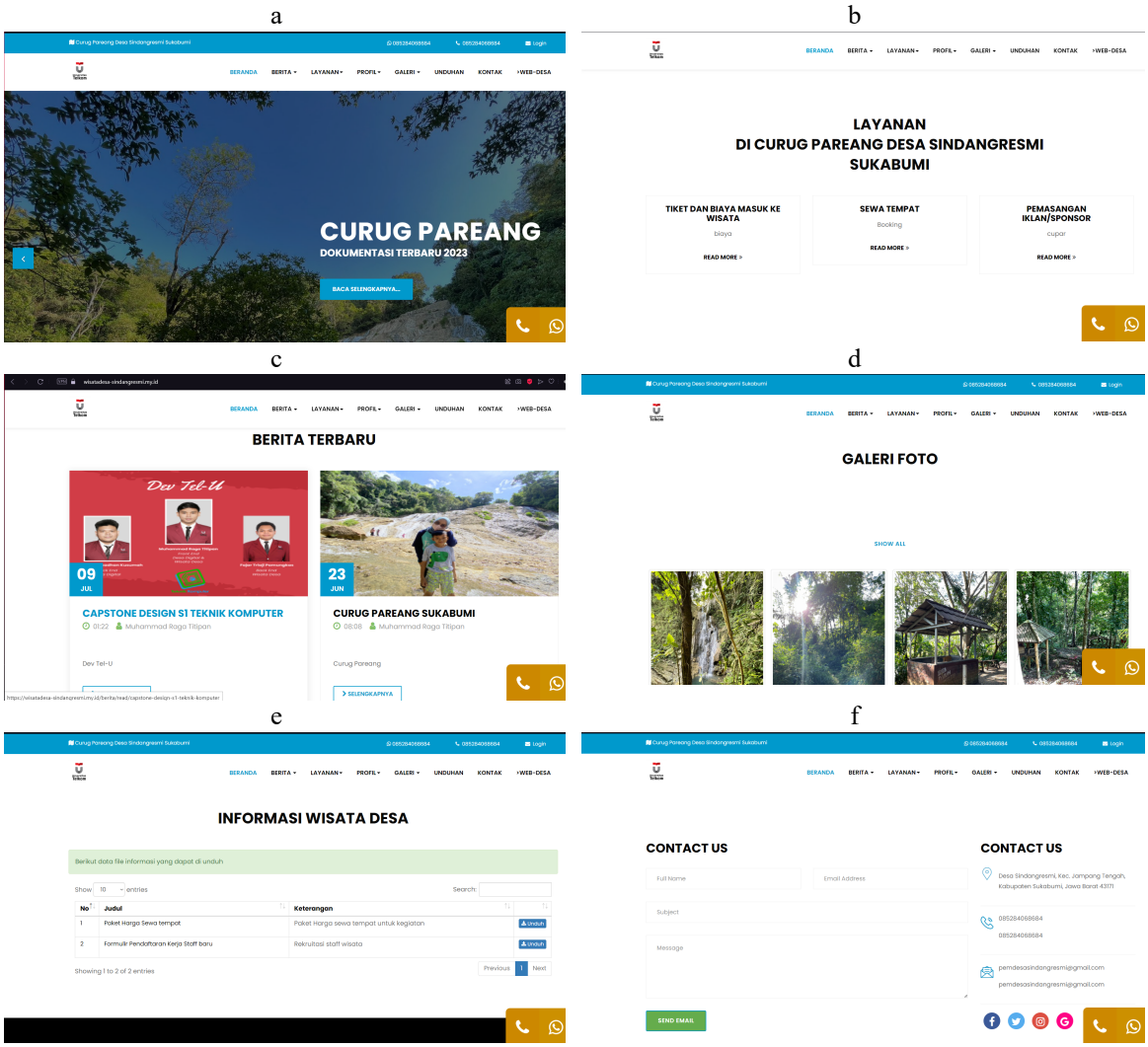
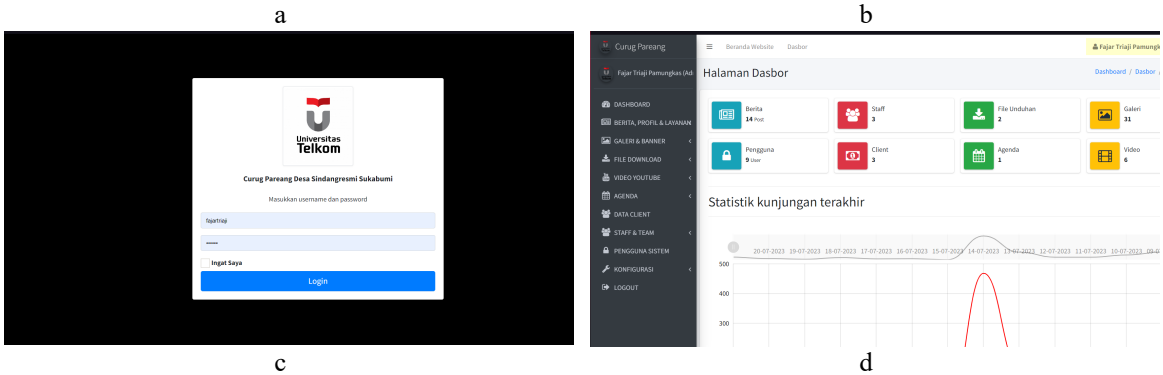


Figure 8 Tourism-site. (a) Home page, (b) Services page, (c) News page, (d) Gallery page, (e) Downloadable browser page, (f) Contact page.

3.1.3 Admin Dashboard



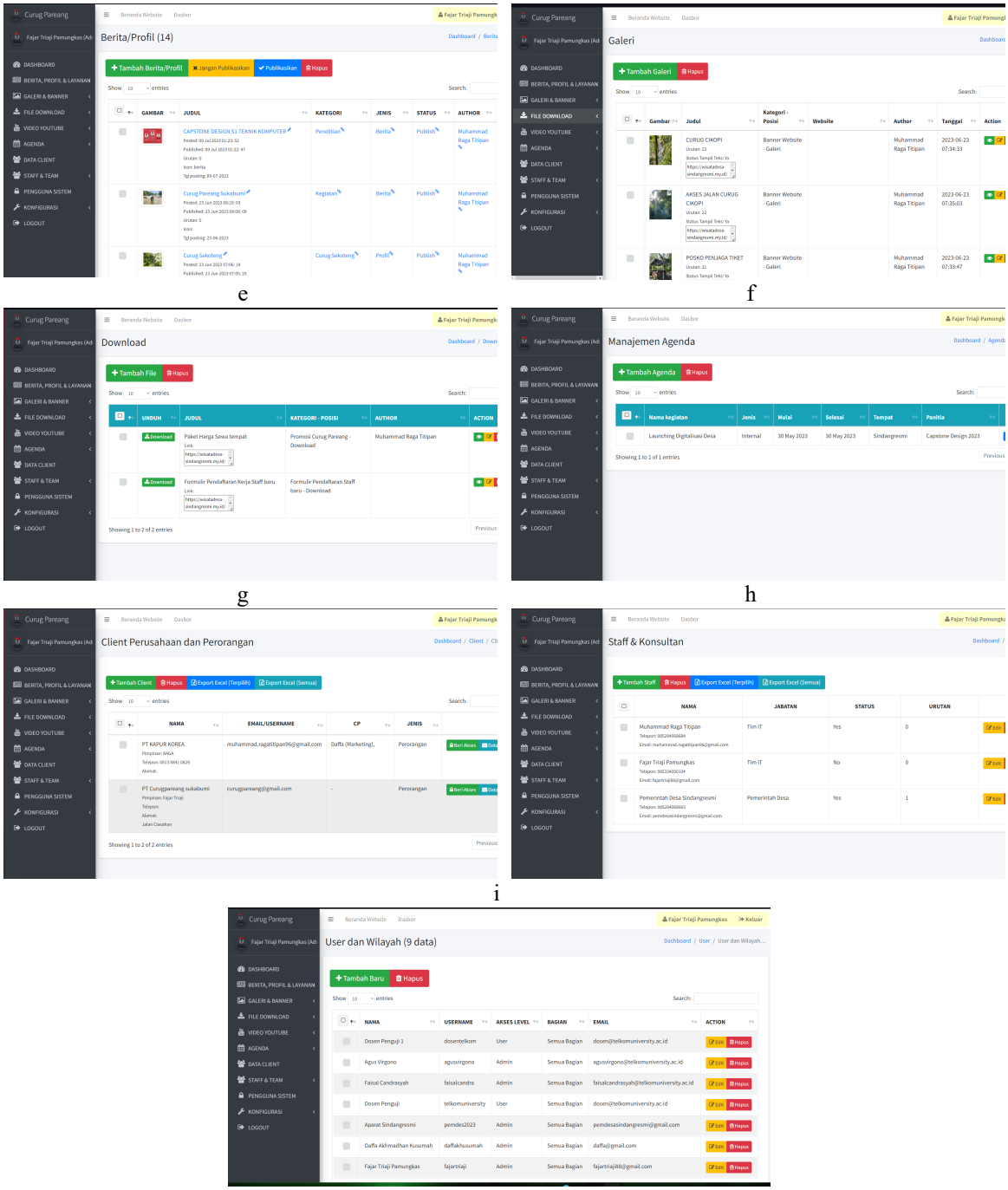


Figure 9 Admin Dashboard. (a) Login, (b) Dashboard, (c) News, Profile, Services page, (d) Gallery and banner page, (e) Download file page, (f) Schedule page, (g) Client data page, (h) Staff and Team data page, (i) Users page.

3.2 Testing

Testing, in the context of software development, refers to the process of evaluating a software application or system to identify defects, errors, or discrepancies between expected and actual behavior. The main purpose of testing is to ensure that the software functions correctly, meets specified requirements, and provides a satisfactory user experience.

3.2.1 Navigation Testing

Navigation testing is used to check whether when the panel is pressed it can direct to the intended page. In this test, the testing method is carried out by trying all the navigation panels and checking one by one whether the panels direct the user to the desired page.

Table 1. Navigation Testing

No.	Scenario	Result
1.	Navigation test can redirect to the appropriate page	pass
2.	Test all items are operable	pass
3.	information can be shown	pass

3.2.2 Data Management Testing

Data management testing is used to test whether data in the system can be added, deleted, and re-edited. in this test, the admin tries to add population data and other data, delete some data, and edit data randomly. after all the tests have been carried out, they will be checked again whether there are possible errors that have occurred.

Table 2. Data Management Testing

No.	Scenario	Result
1.	Data can be added	pass
2.	Data can be deleted	pass
3.	Data can be edited	pass

3.2.3 Attachment Testing

Attachment testing is used to test all existing views whether they are those set by the admin or not. in this test, the admin tries to upload attachments such as images, articles, news, and more. After uploading, deletion and editing will be carried out, then the admin also tries to hide the attachment so that it cannot be seen by users but it is still on the admin page.

Table 3. Attachment Testing

No.	Scenario	Result
1.	attachments can be added	pass
2.	attachments can be deleted	pass
3.	attachments can be edited	pass

3.2.4 User Acceptance Testing

User acceptance testing is used to see what the views of the Sindangpresmi village community are about making this website. in this case, socialization was carried out with 40 Sindangresmi residents. after socializing with this program, they will be asked several questions related to this program.

Table 4. User Acceptance Testing

No.	Questions	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1.	Did you find the event informative and useful?	0	0	0	19	21
2.	Did the event meet your expectations in terms of website-based service improvement and information quality?	0	0	1	15	24
3.	Did the event give you a better understanding of how digitization can benefit the Village?	0	0	0	18	22
4.	4. Did you feel involved and active during the event?	0	0	6	27	7
5.	Did the event inspire you to explore and use the website more often?	3	0	2	16	19
6.	Did the event address your concerns and questions regarding website-based services and information quality?	0	0	2	30	8
7.	Did the event motivate you to provide feedback or suggestions for further improvement?	0	3	2	20	15
8.	Do you feel that the event encourages collaboration and participation among villagers?	0	0	0	22	18
9.	Did the event give you a positive impression regarding digitalization efforts in the tourism sector of Sindangresmi Village?	0	0	0	24	16

After the user acceptance testing (UAT) Out of a total of 40 people who filled out the survey with 9 questions each, a total of 360 data were obtained from the survey data, the data was divided into 155 data that strongly agreed, 184 data agreed, 13 data neutral, 3 data disagreed, and 5 data strongly disagreed.

4. CONCLUSION

The digitization of tourism has improved the tourist experience for potential visitors to Sindangresmi village tourism, they can see online in advance what tourist attractions they want to visit, and they can also order tickets and ask for all information related to the village tour. In addition to improving the visitor experience, tourism digitalization also increases the efficiency and productivity of the people living around the tourist area. They can sell their product to the tourists who come to the tourist spot. The digitization of tourism has also made the tourist attractions of Sindangresmi village more famous outside the area. Because information can be accessed easily people who initially don't know about these tourist attractions will know if there are amazing tourist attractions in the Sindangresmi area.

REFERENCES

[1] World Tourism Organization (2018), UNWTO Annual Report 2017, UNWTO, Madrid. DOI: https://doi.org/10.18111/9789284419807
[2] State of the Nation Address by the President of the Republic of Kazakhstan Nursultan Nazarbayev (2018). New opportunities under the fourth industrial revolution http://www.akorda.kz/en/addresses/addresses_of_president/state-of-the-nationaddress-by-the-president-of-the-republic-of-kazakhstan-nursultan-nazarbayevjanuary-10-2018
[3] Address of the President of the Republic of Uzbekistan Shavkat Mirziyoyev to the Oliy Majlis of the Republic of Uzbekistan dated January 24, 2020. http://uza.uz/oz/politics/zbekiston-respublikasi-prezidenti-shavkat-mirziyeevning-oliy-25-01-2020
[4] Soluk, J., Kammerlander, N., De Massis, A., 2021. Exogenous shocks and the adaptive capacity of family firms: exploring behavioral changes and digital technologies in the COVID-19 pandemic. R&D Manag. 51 (4), 364–380.
[5] Ritter, T., Pedersen, C.L., 2020. Digitization capability and the digitalization of business models in business-to-business firms: Past, present, and future. Industrial Marketing Management 86, 180–190.
[6] Youssef, A.B., Boubaker, S., Dedaj, B., Carabregu-Vokshi, M., 2021. Digitalization of the economy and entrepreneurship intention. Technol. Forecast. Soc. Change 164, 120043.
[7] Grinevich, V., Huber, F., Karatas¸-Ozkan, ¨ M., Yavuz, C., 2019. Green entrepreneurship in the sharing economy: utilising multiplicity of institutional logics. Small Bus. Econ.52 (4), 859–876.
[8] Amit, R., Han, X., 2017. Value creation through novel resource configurations in a digitally enabled world. Strateg. Entrep. J. 11 (3), 228–242.

[9] Lepak, D.P., Smith, K.G., Taylor, M.S., 2007. Value creation and value capture: a multilevel perspective. Acad. Manage. Rev. 32 (1), 180–194.
[10] Matarazzo, M., Penco, L., Profumo, G., Quaglia, R., 2021. Digital transformation andcustomer value creation in Made in Italy SMEs: a dynamic capabilities perspective. J. Bus. Res. 123, 642–656.
[11] I. Nikmatul, P. Mohamad, Sulistiyawati, R. Liza, and M. Muhammad, "Pendampingan Digitalisasi Desa Berbasis Website Sebagai Upaya Meningkatkan Potensi Ekonomi Desa Parerejo Kecamatan Purwodadi," Jurnal soeropati, pp. 135-137, 2021.
[12] F. Irland, P.R. Gina, S.A. Lely, and B. Husni, "Digitalisasi desa di desa cikole lembang," Resona, 2021.
[12] S. Bhatt, 'Digitalization of Rural India: Digital Village', VISION: Journal of Indian Taxation, vol. 7, pp. 83–93, 07 2020.
[13] P. K. Malik, R. Singh, A. Gehlot, S. V. Akram, and P. K. Das, 'Village 4.0: Digitalization of village with smart internet of things technologies', Computers & Industrial Engineering, vol. 165, p. 107938, 2022.
[14] W. W.Wahyu, "Aplikasi Berbasis Website Untuk Booking Hotel Surya Andesa Klaten Menggunakan Framework Laravel Dengan Metode Waterfall", 2023.
[15] P. Reza, "Perancangan Sistem Informasi Manajemen Berbasis Website Untuk Peningkatan Kepuasan Pelanggan Unit Pelaksana Teknis Daerah Industri Pangan Olahan Dan Kemasan Menggunakan Metode Waterfall", 2023.
[16] M. Seli, 'Analisis kepuasan pelanggan produk simpeldesa (sistem informasi manajemen pelayanan desa) di desa cimenyan area treg 3 jawa barat pada tahun 2022'. Telkom University, Bandung, 2022.
[17] Binarso, Y. A., Sarwoko, E. A., & Bahtiar, N. " Pembangunan Sistem Informasi Alumni Berbasis Web pada Program Studi Teknik Informatika Universitas Diponegoro", VISION:Journal Of Informatics And Technology, 1(1):72-84., 2012.
[18] M. U. Fahri, " Sistem Informasi Desa", 2020.
[19] Z. Mustofa, M. I. Mustofa, " Sistem Informasi Desa Berbasis Web (Studi Kasus Desa Weding)", 2018.
[20] Adeola O., Evans O. (2019). Digital tourism: Mobile phones, internet and tourism in Africa. Tourism Recreation Research, 44(2). Crossref.
[21] Bilghan A., Nejad M. (2015). Innovation in hospitality and tourism industry. Journal of Hospitality and Tourism Technology, 6(3), 1–30.
[22] Egger R. (2013). The impact of near field communication on tourism. Journal of Hospitality and Tourism Technology, 4(2), 119–133. doi: 10.1108/JHTT-04-2012-0014 Crossref.
[22] Hojeghan S. B., Esfangareh A. N. (2011). Digital economy and tourism impacts, influences and challenges. Procedia Social and Behavioral Sciences 19, 308–316. Crossref.
[23] Kontogianni A, Alepis E, Patsakis C (2022) Smart tourism and artificial intelligence: paving the way to the post-COVID-19 era. In: Advances in artificial intelligence-based technologies. Springer, Cham, pp 93–109. https://doi.org/10.1007/978-3-030-80571-5_7