Media Promotional for Art in Tangerang City with Audio Visual Adobe Creative

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Abstract

Historical buildings contain elements of art in the city of Tangerang, which have good potential to become a tourist destination, but they must be appropriately managed to generate a source of income for the region. The diversity of ethnicities, races, and religions is an important supporting factor in influencing the diversity of artistic values. One of them is the Lenggang Cisadane Dance which is typical art of Tangerang City. And many historical buildings such as the Thousand Doors Mosque, Fortress Museum, Kalipasir Mosque, Al-Adzhom Mosque, etc. Every historical asset needs to be introduced to the public, and this is the authority of the Communication and Information Technology Office (DisKomInfo). However, the information media used is still very minimal. Therefore, a study was conducted using the KPM method, which outputs video using the Adobe Creative Suite. The media needed to maximize promotion and information is the Video Art, Tourism, and Historic Buildings, with an informative and practical display. The beauty of Tangerang City holds history and high artistic value, so it is hoped that this research can increase public interest in studying history and doing tourism.

Keywords: Information Media, Video Tourism, Art and Historic Buildings.

1. Introduction

In the preliminary research, it will be explained about Tangerang City Overview describing the city of Tangerang with all its diversity, then an explanation of the Office of Communication and Information (DisKomInfo) Tangerang City Overview which has the authority to promote art assets and historic buildings in the city of Tangerang, as well as an explanation of the current problems at DisKomInfo in terms of promoting these art assets and historic buildings.

1.1 Tangerang City Overview

Tangerang City is located in Banten Province [1], Indonesia. The name Tangerang, comes from Sundanese which means "Sign". The city of Tangerang was once the Tangerang Regency, along with the growth of the region, the Government through Law Number 22 of 1999 made changes from the Regency to the City of Tangerang. The city of Tangerang is very strategically located because it is directly adjacent to the National Capital of Indonesia, namely Jakarta. The city of Tangerang has an area of 184.24 square kilometers which is divided into 13 districts and is the largest city in Banten Province, Indonesia. Currently Tangerang City is led by Mayor Mr. H. Arief .R.Wismansyah, B.Sc, M.Kes. This area that has a Long History [2] holds various potential Historical and Artistic Buildings [3] which are interesting to be used as Tourist Destinations [4]. The discussion about the art and historical buildings of the city of Tangerang turned out to be no less interesting for its Diversity [5]. On average, the majority of the community itself has a variety of different ethnic, racial and religious groups ranging from the Betawi, Sundanese, Javanese, to Chinese, as well as the diversity of Religions [6]. The people of Tangerang City have a quite rich diversity of religions that are dominated by Muslims followed by Christians, Catholics, Buddhists and finally Hindus. This is very influential especially on the values of art and local historic buildings. Talking about the diversity of typical art and historical buildings of Tangerang City, there are several types of Distinctive Art [7] from the City of Tangerang, including: Cisadane Lenggang Dance, Barongsai, Peh Cun and Beksi martial arts. In addition to art, Tangerang City is also rich in tourism and historic buildings such as: Thousand Doors Mosque Building, Boen Tek Bio Temple Building, Benteng Museum Building, Kalipasir Mosque Building, Al-Azhom Mosque Building and Water Dam 10.

1.2 Department of Communication and Information (DisKomInfo) Tangerang City Overview

The Office of Communication and Information (DisKomInfo) of Tangerang City is the office that has the authority to Promote [8] art assets and historic buildings in the City of Tangerang. The service is located in the Central Government Building Lt. 4 address at Jl. Satria Sudirman Kota Tangerang. This office is led by a Head of Office, and there is 1 (one) Secretariat and 3 (three) fields, including: Post and Telecommunications, Telematics, Data and Information Processing. The Office of Communication and Information (DisKomInfo) continuously organizes and promotes art assets and historic buildings in the city of Tangerang as part of efforts to improve the welfare of Citizens [9] Tangerang City and increasing the Role of City [10] Tangerang in the concentration of art and national historic buildings. But along with the development of information about art and historical buildings, the Office of Communication and Information (DisKomInfo) needs Media [11] Information [12] appropriate to the development of the City of Tangerang, so that with Media Information [13][14] the right people or tourists more familiar with art and historic buildings in the city of Tangerang, as well as increasing the source of Regional Revenue [15], where the art sector and historic buildings as one of the Foreign Exchange hulls [16] that have values with High Expectations [17]. Therefore, in order to convey more complete information about the latest art destinations and historic buildings that are more effective to the Public [18] [19] and Tourists [20], then at least, the Office of Communication and Information (DisKomInfo) must have information media that can support the promotion of art and historical buildings in the city of Tangerang.

1.2 Problems That Occur

At present the problem that occurs at the Office of Communication and Information Technology (DisKomInfo) is that it does not yet have information media that can attract tourists to see art and historical buildings directly in the city of Tangerang, so that people do not know much about the arts and historic buildings in the city of Tangerang. Because of this problem, this research was conducted, with the aim of Optimizing Information [21] from DisKomInfo by making information media in the form of tourism Videos [22] which would later be expected.

Tourism [23] can be seen by the wider community through the Youtube [24] channel media, Facebook [25] and Website [9][15] Tangerang City to attract more Local and Foreign Tourists [24] and Local Investors [25], and to increase local revenue sources.

2. Theoretical Foundation

Theoretical foundations in this study have a close relationship with each other and support each other. We need to know about information, because the development of increasingly advanced times must be in line with the right information, for that we need the media to convey that information, the media used must also be in accordance with their needs, such as the use of video media. The video referred to here means a video that contains about tourism [26], especially tourism in art and special historic buildings in the city of Tangerang, which of course the public and tourists need to know about Heritage Documentation to get accurate information about art and historic buildings owned by the city of Tangerang The following below is a complete description of what is information, media, video, tourism, art and historic buildings and heritage documentation [27].

2.1 Information

Information is a matter that greatly influences the development of technology and the development of human resources in order to gain knowledge so that they can keep up with the development of increasingly modern and advanced times. Technology continues to develop with a variety of developments and continues to innovate with a variety of Inventions [28].

2.2 Media

A user device that can record image, audio, and/or video information and upload information to a matching service that is able to use matching technology to identify the media and provide supplemental content or information to the user [29].

2.3 Video

From the perspective of media richness theory, that the different kinds of videos had quite similar effects in terms of triggering behavioral changes. However, the mechanisms explaining why triggers were present differed for each video. The consumer's position in the information search process was the most significant reason for the triggering of any kind of effect. In addition, the instructionally designed videos were able to exert an affective triggering effect: the more participants liked the video, the more it affected their participation intention and recall scores. The effects of media richness can vary within technically similar videos, as they form different logical connections among non-verbal visual cues related to a video's storyline [30] [31].

2.4 Tourism

Tourism is certainly a very important global industry because of its great contribution to the economy. Indeed, tourists consume a variegated array of goods and services, with linkages to virtually every industry in the economy. So, it is usually considered as a crucial factor for local development, and great attention is devoted to the measurement of its economic impact. At the same time, however, the 'cultural' impact and the potential risks generated by unsustainable tourism flows are also taken into account. Despite facing occasional shocks, over the past six decades, the tourism sector has showed strength and resilience, with a continuous expansion and diversification [32].

2.5 Heritage Documentation

Heritage documentation is the systematic collection and archiving of both tangible and intangible elements of historic structures and environments [33]. The purpose of documentation is to supply accurate information that will enable correct conservation, monitoring and maintenance for the survival of an artefact. Examples of international and national standards for collecting and archiving information relating to historic structures are detailed in national guidelines such as the Historic American Building Surveys (HABS) and the

English Heritage Metric Survey Practice. At an international level recording standards have been established by the International Council on Monuments and Sites (ICOMOS), which is an international non-governmental organisation of professionals, committed to the conservation of the world's historic monuments and sites [34] [35].

3. Research Methods

The methods used in this study are the methods of Data Collection, Media Design Analysis and Media Production Concepts (KPM).

3.1 Data Collection

Research supporting data collected by: 1) Observation. Observation is data collection needed for the preparation of this research through observation and making systematic records of elements that have been studied with the aim directly at the Department of Communication and Information (DisKomInfo) Tangerang City. 2) Interview. Interview is a method of collecting data with questions and answers directly conducted by the interviewer to obtain information. The interview method is used to get data by asking a few questions to Bpk. Tisna Wijaya was the Stakeholder of the Office of Communication and Information (DisKomInfo) of Tangerang City and also the parties related to this research. 3) Literature Study. Literature study is to explore sources related to research through international journals whose contents are read, related to this research and taken by Citation [36] of his journal to supplement the relevant data in this study.

3.2 Analysis of Media Design

Tourism video information media needed by the Office of Communication and Information Technology (DisKomInfo) of Tangerang City will be created using Adobe Creative Suite (Adobe CS) applications and variants, such as: Adobe Premiere Pro CS6, Adobe After Effects CS6 and Adobe Photoshop CS6.
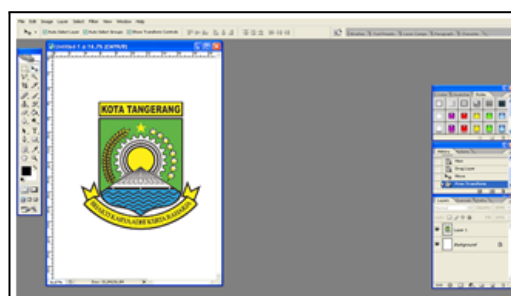
Picture 1. Using Adobe Photoshop CS6 for the Tangerang City Logo Image at the Beginning of the Video Tourism.

3.2 MAVIB Production Concept (KPM)
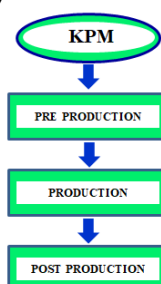
Picture 2. MAVIB Production Concept (KPM)

To be known together, that MAVIB is an abbreviation of Multimedia Audio Visual and Broadcasting which is one of the preeminent concentrations of the Department of Information Engineering at Raharja University, Tangerang City. This concentration is oriented to the development of creativity in utilizing multimedia audio-visual technology and broadcasting that produces a global vision of visual communication media.
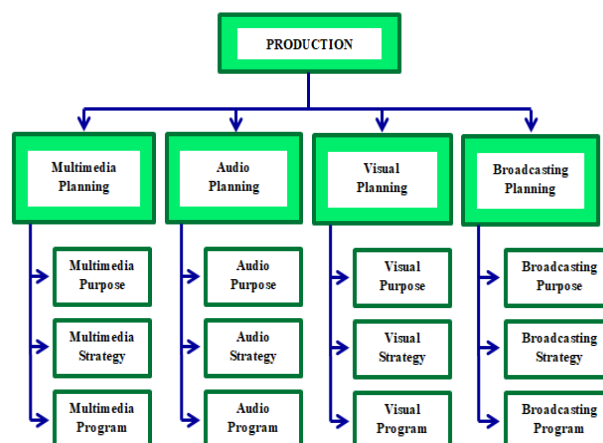
- Pre-Production

Pre-production is the stage where the idea, planning and preparation of the MAVIB Production Concept begin. There are 7 (seven) Pre production steps in KPM, starting from the ideas outlined systematically, then followed by making a Synopsis, Script Writing and Storyboard. The last two stages are selecting the cast and crew and preparing / setting the equipment. All stages must be in accordance with the specified Time Schedule. More details can be seen in the following picture:
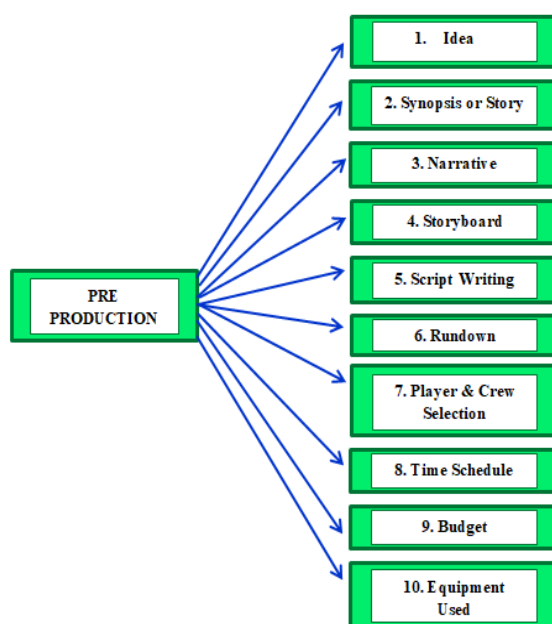
Picture 3. Pre-Production Stages in KPM

- Production

Production is the stage of collaboration between the players and the crew to realize the script, Storyboard and Time Schedule that have been made. At this stage, taking pictures / shooting and editing images from the results of shooting are carried out. To take pictures at the shooting location is done until the completion of the Take Script on schedule. Processing to mix multimedia, audio, visual and broadcasting is made to produce quality tourism videos. Here are the pictures of the stages of production:

Picture 4. Production stages in KPM

- Post Production

Post Production is the final stage of the MAVIB Production Concept. In Post Production there is a distribution of videos made to various media. Post Production can be displayed on the Website, Facebook, Youtube channel in the form of Video Streaming [37][38] as well as other social media, in addition to utilizing the internet it also utilizes technology readiness from user intentions in the context of creating Tourism Videos [39] [40] [41]. Here are pictures from Post Production :
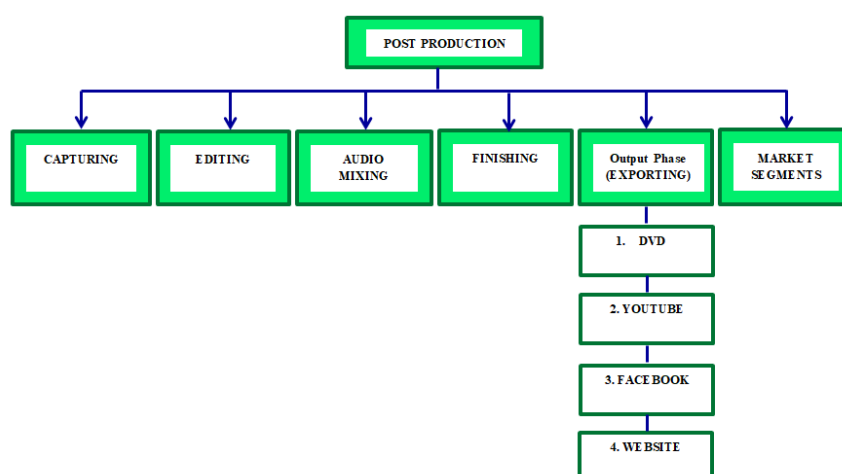
Picture 5. Stages of Post Production in KPM

4. Analysis Result

In this analysis of results, 3 (three) main things that have an important position in this research are explained, namely Pre-Production, Production, Post Production along with their respective steps, along with a complete explanation.

4.1 Pre-Production in this Research

Pre-Production is the starting step of an idea, planning and preparation of the MAVIB Production Concept. There are several Pre-Production steps in this study, namely: Observation, Data collection, Data analysis, Ideas that are expressed systematically,

Storyboarding, Synopsis, Visualization based on context, Message delivered, Script Breakdown Sheet, Time Schedule and Budget. Following below will describe some of them.

- Ideas

    Media Video information is a very effective and efficient media to promote a company or agency or business, because humans can remember as much as 80% of what they see, hear and experience simultaneously. In its development Tangerang City DisKomInfo wants to expand information and promotional areas, especially in the field of art and historic buildings, from this it creates ideas or ideas to have an information media in the form of tourism videos about art and historic buildings in the city of Tangerang and for this reason this research was conducted with the aim of making the tourism video referred to above.

- Synopsis / Story

    Synopsis / Story is a summary of a story or film that forms the approach of a documentary feature. Synopsis is usually limited by the number of pages, for example one or two pages, one fifth or one tenth of the length of a documentary feature. Synopsis of making tourism videos in this study as follows:

    "Tangerang City has the potential of interesting and prospective art and historic buildings, the chain of art objects and historic buildings in the City of Tangerang will be one of the mainstay sources of regional income as well as strategic regional promotion. Tangerang City holds a variety of potential historical buildings and interesting art to become tourist destinations. The city of Tangerang has a unique diversity of art and historic buildings. There are several types of arts typical of the City of Tangerang, including: Cisadane Lenggang Dance, Lion Dance, Peh Cun and Beksi martial arts. In addition to art, Tangerang City is also rich in tourism and historic buildings such as: The thousand doors Mosque Building, Kalipasir Mosque Building, Al-Azhom Mosque Building, Boen Tek Bio Temple Building, Benteng Museum Building and Water Dam 10 Buildings. "

- Storyboard

    Storyboard [42] is a sketch of images arranged sequentially in accordance with the script, with a storyboard we can convey our story ideas to others more easily, because we can lead someone's imagination to follow the images presented, so as to produce the same perception on the idea of our story. Below are a few storyboard pictures related to research:

Picture 6. Historical Buildings of Al-Azhom Mosque
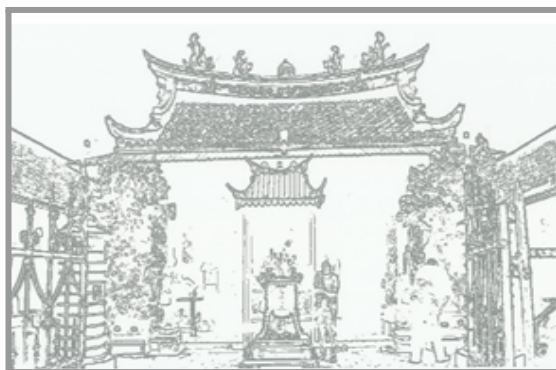
Picture 7. Historic Boen Tek Bio Temple Building

- Equipment Used

    In making this information media in the form of tourism video, various equipment is used, such as: Canon 760D camera, Sony HD, Slik Tripod, Drone Phantom 3 Pro and Shotgun Microphone. In this tourism video, equipment is widely used in the Outdoor area, accompanied by the use of Drones in order to produce better images.

4.2 Production in this Research

Production is the process of taking pictures or shooting videos with the collaboration between the cast and crew to realize the formulation of the pre-production stage in the form of scenarios, scripts, and storyboards that have been made. At the production stage all technical and creative elements such as manuscripts, actors, cinematography and sound, join under the creative supervision of the Director. In carrying out the process of production of shooting or video shooting there are several things that must be prepared properly, including: production design including storyboards that can be a good guide about things that must be done during shooting, the crew's readiness in carrying out their respective roles and readiness equipment which is also the responsibility of each crew.

- Multimedia Planning

    Multimedia planning is a design that combines 3 (three) elements, namely sound, images and text to create dynamic and interactive presentations in video. To succeed this multimedia planning requires 3 (three) systematic stages, starting from the purpose of multimedia, multimedia strategies and multimedia programs.

- Multimedia Strategies

    Before entering the production process, we first formulate a multimedia strategy, the media to be designed and prepared at least meet 3 (three) aspects of the target, namely:
    1. Geography: Tangerang City Region, Indonesia, World.
    2. Demographics:
       Gender   : Male & Female
       Economy Class : Middle
       Ages   : 7 years and above
       Targets   : Community, Local Tourists and Foreign Tourists.
    3. Psychography: People and tourists who want to find out more detailed information and promotions about all art and historical buildings in the city of Tangerang.

- Audio Planning

  Audio is an element that must be present at every time to display a video, because if there is no audio, the video that is displayed will feel less attractive to the public, therefore audio planning has an important factor in determining whether or not media information in the form of video will be produced.

- Audio Program

  Every audio that is applied to fill the sound is taken from the video that has been prepared in accordance with the needs of the media information that is designed, taken from the Mp3 music and look for the appropriate sound effects. The editing program makes it easy to make audio, then the process of adjusting the video design will be made available to the public. The previously taken audio is searched accordingly, such as for MP3 music audio, the appropriate audio capture requires editing from the video cutter and adjusting the placement with the displayed image. The process of the size of the audio sound is made from audio mixing volume.

- Visual Strategy

  Visual Effects can be created with the help of computer technology that has been very advanced now, so as to provide a form of real or really real imaging of the visualization of the video created. Visualization of video display can vary by displaying several elements such as: Bumper, opening, etc.

4.2 Post Production in This Research

Post production stage is the process of finishing a work until it becomes a complete video and is able to convey a story or message to the audience. In the post production process, all images obtained in the production process are put together and edited by an editor. Video playback and distribution activities are also included in the post production process.

- Digitizing

  The first step taken is digitizing or digitizing the results of shooting which are still analogue captured through capture cards or firewire then converted into digital data files then stored on the hard disk and at any time can be recalled if needed.

- Editing

  In this tourism video editing stage, cutting, selecting and compiling the results of shooting images according to the wishes or ideas of the director in accordance with the script and storyboard. At this stage Adobe Photoshop CS6 application for editing logos or images are also used.

- Mixing

  Mixing is the stage of mixing between image and sound, narration that has been recorded and musical illustrations inserted into the image editing results in accordance with the script. The balance between the original sound, narration, musical illustrations and sound effects is very important to be harmonious and harmonious and clearly heard. After the mixing process is completed, the data is exported to a specific file format for broadcasting to the public.

- Finishing

  This finishing stage is the last stage in the process of making this information video. At this stage the video export process from Adobe Premiere CS6 is made into a video format.

- Output Phase (Exporting)

    At this stage of exporting, the results of the rendering of all video merging, namely images, text and back sound will be exported into a predetermined format, MP4 Furthermore, the results of the export video will be burned to DVD, then will be uploaded to Youtube, Facebook and Website.

- Market Segments

    This stage relates to the marketing target of the finished video. Tangerang City DisKomInfo website is used to disseminate tourism videos about art and historic buildings in the city of Tangerang, with the hope that this tourism video can increase the percentage of visitors or tourists by 50% from the previous year.

4. Conclusion

The media needed by Tangerang City DisKomInfo in informing and promoting art and historic buildings in Tangerang City is in the form of media information in the form of tourism videos because it presents an informative and effective display of the beauty of Tangerang City which has a long history and stores a variety of potential artistic and historical buildings in Tangerang City. This tourism video has already been finished and has been made with advantages, namely having Voice Over with the delivery of language that is clear, straightforward and interesting. Besides, the visual appearance is also in harmony with the audio and visual effects presented, so that the message conveyed is easily understood by the public and tourists. Information media in the form of tourism videos can attract tourists to visit and get to know the diverse potential of art and historic buildings in the city of Tangerang. This tourism video is implemented through DVDs and various Social Media such as Youtube, Facebook, Tangerang City Website and at several arts and cultural events. The target to be achieved by DisKomInfo through information media in the form of video art tourism and historic buildings in the city of Tangerang is the increase of tourist visits by 50% from the previous year, as well as beneficial to increase local revenue sources, so that Tangerang City becomes an Investable, Liveable, Visitable City and E-City. However, there is still a need for further research to develop a tourism video that has been made and so that the latest information through this tourism video can be accepted by the whole community and not only presented on social media, it is also necessary to make it into the form of apps, which can be obtained by the public and tourists later through the app store application or on the playstore.

References

[1]   A. Husnayain, A. Fuad, and E. C.-Y. Su, "Applications of google search trends for risk communication in infectious disease management: A case study of COVID-19 outbreak in Taiwan," *Int. J. Infect. Dis.*, 2020.

[2]   N. Priyanka and P. RaviKumar, "Usage of data mining techniques in predicting the heart diseases—Naïve Bayes & decision tree," in *2017 International Conference on Circuit, Power and Computing Technologies (ICCPCT)*, 2017, pp. 1–7.

[3]   H. Xu, "The study on eco-environmental issue of Aral Sea from the perspective of sustainable development of Silk Road Economic Belt," in *IOP Conference Series: Earth and Environmental Science*, 2017, vol. 57, no. 1, p. 12060.

[4]   N. Hatami *et al.*, "Worldwide ACE (I/D) polymorphism may affect COVID-19 recovery rate: an ecological meta-regression." Springer, 2020.

[5]   H. W. Ian and F. Eibe, "Data mining: Practical machine learning tools and techniques." Morgan Kaufmann Publishers, 2005.

[6]   S. Nayak, M. K. Gourisaria, M. Pandey, and S. S. Rautaray, "Prediction of Heart

Disease by Mining Frequent Items and Classification Techniques," in *2019 International Conference on Intelligent Computing and Control Systems (ICCS)*, 2019, pp. 607–611.

[7]   Y. Jia and X. Wang, "Intelligent Traffic Decision Analysis System Based on Big Data Mining," *MS&E*, vol. 392, no. 6, p. 62187, 2018.

[8]   S. Shokouhyar, P. Saeidpour, and A. Otarkhani, "Predicting Customers' Churn Using Data Mining Technique and its Effect on the Development of Marketing Applications in Value-Added Services in Telecom Industry," *Int. J. Inf. Syst. Serv. Sect.*, vol. 10, no. 4, pp. 59–72, 2018.

[9]   U. Rahardja, T. Hariguna, and W. M. Baihaqi, "Opinion mining on e-commerce data using sentiment analysis and k-medoid clustering," *Proc. - 2019 12th Int. Conf. Ubi-Media Comput. Ubi-Media 2019*, pp. 168–170, 2019, doi: 10.1109/Ubi-Media.2019.00040.

[10]   M. T. H. Nyo and W. Z. Hein, "Design and Construction of Navigation Based Auto Self-Driving Vehicle using Google Map API with GPS," *Int. J. Trend Sci. Res. Dev*, vol. 3, pp. 65–68, 2019.

[11]   M. A. Muslim, A. J. Herowati, E. Sugiharti, and B. Prasetiyo, "Application of the pessimistic pruning to increase the accuracy of C4. 5 algorithm in diagnosing chronic kidney disease," in *Journal of Physics: Conference Series*, 2018, vol. 983, no. 1.

[12]   T. Hariguna, E. P. Harahap, and Salsabila, "Implementation of Business Intelligence Using Highlights in the YII Framework based Attendance Assessment System," *Aptisi Trans. Technopreneursh.*, vol. 1, no. 2, 2019, doi: 10.34306/att.v1i2.32.

[13]   H. Henderi, E. Kurnadi, and D. Trisnawarman, "Decision Support System Model Determines the Type of Road Construction in Indonesia," in *IOP Conference Series: Materials Science and Engineering*, 2020, vol. 852, no. 1, p. 12142.

[14]   C. E. A. Pah and D. N. Utama, "Decision Support Model for Employee Recruitment Using Data Mining Classification," *Int. J.*, vol. 8, no. 5, 2020.

[15]   U. Rahardja, E. P. Harahap, and S. R. Dewi, "The strategy of enhancing article citation and H-index on SINTA to improve tertiary reputation," *Telkomnika (Telecommunication Comput. Electron. Control.*, vol. 17, no. 2, pp. 683–692, 2019, doi: 10.12928/TELKOMNIKA.V17I2.9761.

[16]   R. Zhuo and Z. Bai, "Key technologies of cloud computing-based IoT data mining," *Int. J. Comput. Appl.*, pp. 1–8, 2020.

[17]   E. Indra, K. Ho, R. Hakim, D. Sitanggang, and O. Sihombing, "Application of C4. 5 Algorithm for Cattle Disease Classification," in *Journal of Physics: Conference Series*, 2019, vol. 1230, no. 1, p. 12070.

[18]   A. Pradipta, D. Hartama, A. Wanto, S. Saifullah, and J. Jalaluddin, "The Application of Data Mining in Determining Timely Graduation Using the C45 Algorithm," *IJISTECH (International J. Inf. Syst. Technol.*, vol. 3, no. 1, pp. 31–36, 2019.

[19]   Q. Aini, M. Budiarto, P. O. Hadi Putra, A. Khoirunisa, N. P. L. Santoso, and U. Rahardja, "Gamified education practice: Designing with e-commerce and ilearning concept," *Int. J. Psychosoc. Rehabil.*, vol. 24, no. 7, 2020, doi: 10.37200/IJPR/V24I7/PR270799.

[20]   J.-M. Wang, C.-L. Qian, C.-H. Che, and H.-T. He, "Study on Process of Network Traffic Classification Using Machine Learning," in *2010 Fifth Annual ChinaGrid Conference*, 2010, pp. 262–266.

[21]   D. M. B. Tarigan and D. P. Rini, "Particle Swarm Optimization–Based on Decision Tree of C4. 5 Algorithm for Upper Respiratory Tract Infections (URTI) Prediction," in *Journal of Physics: Conference Series*, 2019, vol. 1196, no. 1, p. 12077.

[22]   A. Asyary and M. Veruswati, "Sunlight exposure increased Covid-19 recovery rates: A study in the central pandemic area of Indonesia," *Sci. Total Environ.*, p. 139016, 2020.

[23]   U. Rahardja, S. Sudaryono, N. P. L. Santoso, A. Faturahman, and Q. Aini, "Covid-19: Digital Signature Impact on Higher Education Motivation Performance," *Int. J. Artif. Intell. Res.*, vol. 4, no. 1, May 2020, doi: 10.29099/ijair.v4i1.171.

[24]   Q. Aini, S. Riza Bob, N. P. L. Santoso, A. Faturahman, and U. Rahardja, "Digitalization of Smart Student Assessment Quality in Era 4.0," *Int. J. Adv. Trends Comput. Sci.*

Eng., vol. 9, no. 1.2, pp. 257–265, Apr. 2020, doi: 10.30534/ijatcse/2020/3891.22020.

[25] U. Rahardja, A. N. Hidayanto, T. Hariguna, and Q. Aini, "Design Framework on Tertiary Education System in Indonesia Using Blockchain Technology," *2019 7th Int. Conf. Cyber IT Serv. Manag. CITSM 2019*, pp. 5–8, 2019, doi: 10.1109/CITSM47753.2019.8965380.

[26] U. Rahardja, M. Hardini, A. L. Al Nasir, and Q. Aini, "Taekwondo Sports Test and Training Data Management Using Blockchain," in *2020 Fifth International Conference on Informatics and Computing (ICIC)*, 2020, pp. 1–6.

[27] U. Rahardja, Q. Aini, Y. I. Graha, and N. Lutfiani, "Validity of Test Instruments," in *Journal of Physics: Conference Series*, 2019, vol. 1364, no. 1, p. 12050.

[28] D. Apriani, A. Williams, U. Rahardja, A. Khoirunisa, and S. Avionita, "The Use of Science Technology In Islamic Practices and Rules In The Past Now and The Future," *Int. J. Cyber IT Serv. Manag.*, vol. 1, no. 1, pp. 48–64, 2021.

[29] G. Maulani, U. Rahardja, M. Hardini, R. D. I'zzaty, Q. Aini, and N. P. L. Santoso, "Educating Farmers Using Participatory Rural Appraisal Construct," in *2020 Fifth International Conference on Informatics and Computing (ICIC)*, 2020, pp. 1–8.

[30] U. Rahardja, Q. Aini, Y. I. Graha, and M. R. Tangkaw, "Gamification Framework Design of Management Education and Development in Industrial Revolution 4.0," *J. Phys. Conf. Ser.*, vol. 1364, no. 1, pp. 0–13, 2019, doi: 10.1088/1742-6596/1364/1/012035.

[31] Q. Aini, U. Rahardja, N. P. L. Santoso, and A. Oktariyani, "Aplikasi Berbasis Blockchain dalam Dunia Pendidikan dengan Metode Systematics Review," *CESS (Journal Comput. Eng. Syst. Sci.*, vol. 6, no. 1, pp. 58–66, 2021.

[32] Henderi, Q. Aini, N. P. L. Santoso, A. Faturahman, and U. Rahardja, "A proposed gamification framework for smart attendance system using rule base," *J. Adv. Res. Dyn. Control Syst.*, vol. 12, no. 2, 2020, doi: 10.5373/JARDCS/V12I2/S20201226.

[33] Q. Aini, A. Badrianto, F. Budiarty, A. Khoirunisa, and U. Rahardja, "Alleviate Fake Diploma Problem In Education Using BlockChain Technology," *J. Adv. Res. Dyn. Control Syst.*, vol. 12, no. 2, pp. 1821–1826, 2020, doi: 10.5373/JARDCS/V12I2/S20201225.

[34] S. Watini, Q. Aini, A. Khoirunisa, and U. Rahardja, "Assessment System for Testing the Evaluation of Diversity in Traditional Malay Dance by Early Childhood Students," *Int. J. Psychosoc. Rehabil.*, vol. 24, no. 8, pp. 2721–2729, 2020, doi: 10.37200/IJPR/V24I8/PR280291.

[35] U. Rahardja, N. Lutfiani, A. S. Rafika, and E. P. Harahap, "Determinants of Lecturer Performance to Enhance Accreditation in Higher Education," in *2020 8th International Conference on Cyber and IT Service Management (CITSM)*, 2020, pp. 1–7.

[36] P. A. Sunarya, U. Rahardja, and D. I. Desrianti, "Development Assessment Module Portfolio E-Imei Students With Learning To Improve The Quality Of Concentration Case Study Mavib," vol. 13, no. 8, pp. 3597–3606, 2016.

[37] Sudaryono, U. Rahardja, and Masaeni, "Decision Support System for Ranking of Students in Learning Management System (LMS) Activities using Analytical Hierarchy Process (AHP) Method," *J. Phys. Conf. Ser.*, vol. 1477, no. 2, 2020, doi: 10.1088/1742-6596/1477/2/022022.

[38] T. Hariguna, U. Rahardja, and A. Ruangkanjanases, "The impact of citizen perceived value on their intention to use e-government services: an empirical study," *Electron. Gov. an Int. J.*, vol. 16, no. 4, pp. 426–440, 2020.

[39] U. Rahardja, T. Hariguna, and Q. Aini, "Understanding the impact of determinants in game learning acceptance: An empirical study," *Int. J. Educ. Pract.*, vol. 7, no. 3, pp. 136–145, 2019, doi: 10.18488/journal.61.2019.73.136.145.

[40] Q. Aini, T. Hariguna, P. O. H. Putra, and U. Rahardja, "Understanding how gamification influences behaviour in education," *Int. J. Adv. Trends Comput. Sci. Eng.*, vol. 8, no. 1.5 Special Issue, pp. 269–274, 2019, doi: 10.30534/ijatcse/2019/4781.52019.

[41] C. Lukita, M. Hatta, E. P. Harahap, and U. Rahardja, "Crowdfunding management platform based on block chain technology using smart contracts," *J. Adv. Res. Dyn. Control Syst.*, vol. 12, no. 2, 2020, doi: 10.5373/JARDCS/V12I2/S20201236.

[42] U. Rahardja, C. Lukita, F. Andriyani, and Masaeni, "Optimization of marketing workforce scheduling using metaheuristic genetic algorithms," *Int. J. Adv. Trends Comput. Sci. Eng.*, vol. 9, no. 1.2 Special Issue, pp. 243–249, 2020, doi: 10.30534/IJATCSE/2020/3691.22020.