

# Brand Equity of Banyuwangi as a Natural Tourism Destination

Siti Rahayu<sup>1,\*</sup> & Sugeng Hariadi<sup>2</sup>

<sup>1</sup> University of Surabaya, Surabaya, Indonesia

<sup>2</sup> University of Surabaya, Surabaya, Indonesia

## ABSTRACT

This study aims to investigate the brand equity of Banyuwangi city as a natural tourism branding. The questionnaire data is obtained from 160 local tourists who have traveled to Banyuwangi. Hypothesis testing is done by using a structural equation model. The results show that of the eleven hypotheses, nine hypotheses are supported, and two hypotheses are not. The supported hypotheses are the influence of destination brand awareness on destination brand image and overall destination brand equity; the effects of destination brand image on destination perceived quality, destination brand loyalty, and overall destination brand equity; and the influence of destination perceived quality on destination brand loyalty. Meanwhile, the two unsupported hypotheses are the effects of destination brand awareness on destination perceived quality and the effects of destination perceived quality on overall destination brand equity.

**Keywords:** brand awareness, brand image, brand equity, brand loyalty.

## 1 INTRODUCTION

Prior to the Covid-19 pandemic, the service sector was growing exponentially around the world. In Asia, significant growth trends were seen considering traveler visits to numerous destination brands. However, these brands face challenges that require careful consideration from academics and experts. Branding is essential for the development of a destination brand. Over the years, branding has been used to differentiate one company's products and services from its competitor. However, the concept of destination branding arose as a discipline for marketing scholars in the late 1990s. Branding researchers are starting to highlight a variety of destination branding issues. Many studies support the idea that branding principles can be replicated for studying destination brands (Kashif et al. 2015).

Research on destination branding begins with brand equity. The four main dimensions of brand equity, namely brand aware-

ness, brand association, perceived quality, and brand loyalty, have attracted academics and marketing practitioners. This shows that substantial brand equity signifies that customers have high brand awareness, preserve a preferred brand image, and believe that the brand has top quality and trustworthiness. Nevertheless, the involvement of individual dimension to inclusive brand equity may vary. It is also determined by the condition of the business, target market, brand, and circumstances.

Certain brands may have different values in varied nations because the market environment might vary from nation to nation. Tran et al. (2019) use the Aaker model to determine the contribution to the overall brand equity under specific circumstances. Brand equity has been considered for tourism purposes, which conjoin multiple products (services) from different providers. This is affected by many factors, such as food and beverages, attractions, accommodation, and tourism policies.

Konecnik & Gartner (2007) conduct the early research of brand equity destinations. Research on destination brand equity is increasing and, to a large extent, applies Aaker's (1991) brand equity model. However, only a few findings have concurrently observed the causal relationship between these components and their effects on terminus' brand equity as a whole (Tran et al. 2019).

Branding in the tourism industry has become an essential element; therefore, tourist destination owners must pay attention to the brands of their tourist destinations to increase brand equity (Kashif et al. 2015). Nevertheless, in what way each size impacts the destination's usual brand equity relies upon the destination emblem and visitor types.

Maulana (2021) states that brand awareness is critical to improving the image of tourism for foreign tourists. In fact, there are still many tourist destinations in Indonesia that have not been fully introduced (Andy 2020).

Tourism destination branding is one of the trends of city branding by making a city or area of a tourist destination for domestic and foreign tourists (Kavaratzis 2008). A city can manage its tourism potential as a unique identity and characteristics. This competitive brand is expected to make it an attractive tourist destination for tourists. A strong and unique brand will have a positive effect on the sustainability of tourist destinations.

This analysis observes the connection between dimensions and their effects on destination brand equity as a whole (Tran et al. 2019). Specifically, a study of domestic tourists traveling to a destination with the city branding "Majestic Banyuwangi". This city branding is part of the Ministry of Tourism and Creative Economic efforts to bring tourists to Indonesia.

Banyuwangi is one of 'The 10 Destinations Branding'. Majestic Banyuwangi was introduced internationally as part of the Wonderful Indonesia brand. The Banyuwangi Regency Government noted that the

number of tourist visits in 2019 reached 5.4 million compared to 4.9 million in 2018. Favorite places in Banyuwangi are Mount Ijen, Merah Island, Grand New Watu Dodol, Djawatan, Bangsring Underwater, and Cacalan Beach. Banyuwangi's economic growth is 5.6% and higher than the national one, which is only 0.53%. Tourism has also changed the open unemployment rate, which fell by 50% in the range of 3.07% (Fanani 2020).

The results of this study are expected to help Banyuwangi get evidence about the relationship between the components of the destination and its consequence on destination brand equity. Hopefully, through good city branding management, the tourism sector can improve.

## 2 RESEARCH METHODS

This research is causal, namely a research type aiming to examine the causal relationship between variables (Zikmund et al. 2013). Causal research describes a causal relationship from one or more variables (Sekaran 2000). The type of data used in this research is quantitative data (Kuncoro 2003). The information source used in this inquiry is the primary data: the data obtained directly from the respondents through the distribution of questionnaires. The data processing uses IBM SPSS Statistics 22.0 for Windows, besides the Structural Equation Modeling package together with AMOS 22.0.

## 3 RESULTS AND DISCUSSIONS

### 3.1 Respondent identity

Respondents in this study were 160 people. Based on gender, male respondents were 46.2%, and female respondents were 53.8%. Most respondents aged 17-25 years were 87.6%, and 26-60 years old were 12.4%. Respondents with high school educations were 32.5%, and undergraduates were 36.9%.

### 3.2 Measurement model

The measurement of this research uses the Amos 22.0 software. The CFA method is carried out on all variables and indicators. If this measurement model has a Goodness-of-fit index value, which includes the indexes: CMIN/DF, RMSEA, GFI, and CFI, then the model can be processed.

Based on the results of information processing, it can be seen that each indicator has a standardized loadings value of more than 0.5. This exhibits that the constituent indicators of each research variable show good measurements. The resulting AVE values have values between 0.4 - 0.5. Verhoef et al. (2002) state that the value of  $AVE > 0.4$  or  $AVE < 0.5$  is still acceptable as long as the value of construct reliability is  $> 0.7$ .

Table 1. Measurement Model's Goodness of Fit.

Goodness of fit	Criteria	Model Result	Description
CMIN/DF	$2 < CMIN/DF < 3$	2.088	Good fit
RMSEA	$RMSEA < 0.08$	.083	Good fit
GFI	$0.9 < GFI < 0.95$	.869	Good fit
CFI	$CFI > 0.9$	.947	Good fit

Data processing results show that the resulting Construct Reliability value is above 0.7, which shows that these indicators have good reliability. Based on the measurement results, it is concluded that the criteria for the validity and reliability of the measurement model are good.

Table 1 indicates that all indicators are declared a good fit. The CMIN/DF value is 2.088, which is between 2 and 3, so it can be said to be a good fit. The RMSEA value is 0.083, which is classified as a good fit because it is above 0.08. GFI has a value of 0.869 (below 0.9), so it is classified as a good fit. CFI has 0.947 (below 0.09), so it is also declared a good fit.

### 3.3 Structural model

The structural model fit test results show that the CMIN/DF value is 2.250 and is declared a good fit (more than 2 and less than 3). The RMSEA value is 0.089 (more than 0.08), so it is declared a good fit. GFI has a value of 0.859, so it is declared a good fit

(less than 0.9 - 0.95). CFI is declared a good fit because it is more than 0.9, which is 0.939.

Table 2. Structural Model's Goodness of Fit.

Goodness of fit	Criteria	Model Result	Description
CMIN/DF	$2 < CMIN/DF < 3$	2.250	Good fit
RMSEA	$RMSEA < 0.08$	.089	Good fit
GFI	$0.9 < GFI < 0.95$	.859	Good fit
CFI	$CFI > 0.9$	.939	Good fit

Table 2 shows that the structural model can explain the direction of the relationship and the direction of the influence appropriately and does not cause prediction bias

### 3.4 Hypothesis Testing

Table 3 shows that of the 9 hypotheses in this study, 7 are supported and 2 are not. The hypothesis is supported if the significance value (p-value) is  $< 5\%$ , and the CR value  $> 1.96$ . The seven supported hypotheses show that: (1) destination brand awareness affects the destination brand image, (2) destination brand image affects destination perceived quality, (3) destination brand image affects destination brand loyalty, (4) destination perceived quality affects destination brand loyalty (5) destination brand awareness takes a consequence on overall destination brand equity, (6) destination brand image has an effect on overall destination brand equity, and (7) destination brand trustworthiness (loyalty) has an effect on overall destination brand equity.

Two unsupported hypotheses indicate that: (1) destination brand awareness has no effect on destination perceived quality, and (2) destination perceived quality has no effect on overall destination brand equity. The seven supported hypotheses are in accordance with the references of this study. Meanwhile, the two unsupported hypotheses are not in accordance with the references of this study (Tran et al. 2019).

Consumer brand awareness leads to the brand association and recognized quality, which will affect brand faithfulness attitudes (Konecnik & Gartner 2007). Facts have proved that brand awareness is an essential prerequisite for customer value and is re-

garded as an indicator of the basic concept of traveler deeds in tourism and hospitality texts (Oh 2000, Kwun & Oh 2004).

The correlation between destination brand awareness and destination brand image in previous studies was positive (Pike et al. 2010, Myagmar-suren & Chen 2011, Tran et al. 2019).

Table 3. Measurement Model's Goodness of Fit.

	Est.	CR	P	Description
DBA → DBI	0.848	7.844	***	Supported
DBA → DPQ	0.031	0.161	.872	Unsupport- ed
DBI → DPQ	0.770	3.355	***	Supported
DBI → DBL	0.610	5.766	***	Supported
DPQ → DBL	0.366	4.190	***	Supported
DBA → ODBE	0.364	2.672	.008	Supported
DBI → ODBE	-0.466	-1.992	.046	Supported
DPQ → ODBE	-0.090	-.735	.462	Unsupport- ed
DBL → ODBE	1.188	4.748	***	Supported

Note: DBA: Destination Brand Awareness; DBI: Destination Brand Image; DPQ: Destination Perceived Quality; DBL: Destination Brand Loyalty; ODBE: Overall Destination Brand Equity.

Destination brand awareness has no significant effect. This is not in line with previous researchers who state that brand awareness is the key element for constructing brand equity (Keller 2001). Corresponding to Aaker (1991), consumers must be aware that the brand has a set of brand associations. Brand awareness distresses the construction and forte of brand connotations and alleged superiority (Keller & Lehmann 2003, Aaker 1991, Keller 1993).

Destination brand image has a positive and significant effect on destination perceived quality. Brand image refers to the perception of the brand in the minds of customers. According to Keller (1993), customer associations direct their perceptions of brand quality. In the context of tourism, a positive connection between terminus' brand image and terminus' perceived quality has been found (Myagmarsuren & Chen 2011, Tran et al. 2017).

Destination brand image has a positive and significant consequence on destination brand loyalty. The consequences of this study specify that destination brand image is

recognized as a major element of destination brand trustworthiness (Hosany et al. 2006); and positive destination brand image delivers profits such as high destination brand loyalty to brand destination (Cai 2002).

The perceived quality of destinations has an important impact on destination brand loyalty. For manufacturers and service servers, brand perceived quality is an important part of brand equity (Aaker 1991, Keller 2003). According to the research of Keller & Lehmann (2003), the perceived quality of destination brands is a step towards brand loyalty. In the hotel and tourism industry, Konecnik & Gartner (2007) point out that the perceived quality of destination brands to tourist destinations is an effective and powerful measurement of brand equity. Previous studies in this field (Boo et al. 2009, Pike et al. 2010, Tran et al. 2017) reveal that the perceived quality of destination brands has a positive impact on destination brand trustworthiness.

Destination brand awareness has a positive and significant impact on the overall destination brand equity. The results of this study are consistent with Yoo et al. (2000). Destination brand awareness shows quality and commitment, which can help customers recognize the brand and consider it when buying (Aaker 1991).

The destination brand image has a significant impact on the overall destination brand equity. This study shows that from the perspective of marketers, a positive destination brand image can bring advantages to destination brands (Cai 2002). This is similar to the research of Kashif et al. (2015). In addition, the higher perceived quality will encourage customers to choose brands over other competitors. In numerous studies, there has been evidence that destination brand image is an essential aspect of overall destination brand equity (Tran et al. 2017, Cai 2002, Bianchi & Pike 2011, Pike et al. 2010, Boo et al. 2009).

The influence of the perceived quality of the destination on the overall destination brand equity is not supported. The results of this study are inconsistent with the results of

previous studies. Previous studies show that the higher the perceived quality of the destination, the higher the overall assets of the destination brand. There is a positive correlation between the two perceptions of destination perceived quality (Tran 2017, Buil et al. 2013, Yoo et al. 2000).

The effect of destination brand loyalty on the complete destination brand equity is significant. This study shows that the value of brand equity is mainly generated by brand loyalty (Yasin et al. 2007). Buil et al. (2013) stipulate that loyal consumers respond better to brands; therefore, brand trustworthiness will enhance brand equity. Former findings on destination show that brand trustworthiness goals have a positive impact on overall destination brand equity brands (Kashif et al. 2015, Srihadi et al. 2015).

#### 4. CONCLUSION

The outcomes of this research show 7 supported and 2 unsupported hypotheses. This shows that 7 hypotheses are congruent with the former study (Tran et al. 2019), and 2 hypotheses are not in line with Tran et al. (2019). The results of this study can be different when it is carried out in different destinations, different countries, and different tourist characteristics.

#### REFERENCES

- Aaker, D.A. 1991. *Managing Brand Equity: Capitalizing on The Value of a Brand Name*. New York The Free Press
- Andy, H. 2020. Importance of Destination Branding for Tourism. <https://eticon.co.id/pentingnya-destination-branding-untuk-pariwisata/> Downloaded on 27 February 2021
- Bianchi, C. & Pike, S. 2011. Antecedents of Destination Brand Loyalty for a Long-Haul Market: Australia's Destination Loyalty Among Chilean Travelers. *Journal of Travel & Tourism Marketing* 28(7):736-750. DOI: 10.1080/10548408.2011.611742
- Boo, S., Busser, J. & Baloglu, S. 2009. A model of customer-based brand equity and its application to multiple destinations. *Tourism Management* 30(2): 219-231. DOI: 10.1016/j.tourman.2008.06.003
- Buil, I., Chernatony, L. & Martinez, E. 2013. Examining the role of advertising and sales promotion in brand equity creation. *Journal of Business Research* 66(1). DOI: 10.1016/j.jbusres.2011.07.030
- Cai, L.A. 2002. Cooperative Branding for Rural Destinations. *Annals of Tourism Research* 29: 720-742.
- Fanani, A. 2020. Tourist visits to Banyuwangi Translucent 5.4 million. <https://news.detik.com/berita-jawa-timur/d-4864264/2019-kunjungan-wisatawan-ke-banyu-wangi-tentang-54-juta>. Downloaded February 27, 2020.
- Hosany, S., Ekinci, Y. & Uysal, M. 2006. Destination image and destination personality: An application of branding theories to tourism places. *Journal of Business Research* 59(5): 638-642. DOI: 10.1016/j.jbusres.2006.01.001
- Kashif, M., Samsi, S.Z.M. & Sarifuddin, S. 2015. Brand equity of Lahore fort as a tourism destination brand. *Re vistaed Administracia ~ode Empresas* 55(4):432-443.
- Kavaratzis, A. 2008. Place Marketing: How did we get here and where are we going? *Journal of Place Management and Development* 1(2): 150-165.
- Keller, K.L. 1993. Conceptualizing, Measuring, and Managing Customer-Based Brand Equity. *Journal of Marketing* 57: 1-22.
- Keller, K.L. 2001. Building customer-based brand equity: A blueprint for creating strong brands. *Marketing Management* 28(1): 35-41.
- Keller, K.L. 2003. *Strategic Brand Management: Building, Measuring, and Managing Brand Equity*. New Jersey: Prentice Hall.
- Keller, K.L. & Lehmann, D.R. 2003. How do brands create value? *Marketing management* May/June: 26-31.
- Konecnik, M. & Gartner, W.C. 2007. Customer-based brand equity for a destination. *Annals of Tourism Research* 34(2): 400-421. <https://doi.org/10.1016/j.annals.2006.10.005>
- Kuncoro, M. 2003. *Research Methods for Business & Economics*. Jakarta: Erlangga.
- Kwun, J.W. & Oh, H. 2004. Behavioral Intentions in the Restaurant Industry. *Journal of Hospitality & Leisure Marketing* 11(1): 31-49. DOI:10.1300/J150v11n01\_03
- Maulana, A. 2021. Indonesia Tourism Brand Awareness Review "Wonderful Indonesia". [https://www.kemenpar.ekraf.go.id/asset\\_admin/assets/uploads/media/old\\_all/](https://www.kemenpar.ekraf.go.id/asset_admin/assets/uploads/media/old_all/) Downloaded on 27 February 2021
- Myagmarsuren, O. & Chen, C.C.F. 2011. Exploring relationships between destination brand equity, satisfaction, and destination loyalty: a case study of Mongolia. *Journal of Tourism, Hospitality & Culinary Arts*. 2011.

- Oh, H., 2000. The effect of brand class, brand awareness, and price on customer value and behavioral intentions. *Journal of Hospitality & Tourism Research* 24: 136-162.
- Pike, S., Bianchi, G., Kerr, G., & Patti, C. 2010. Consumer-based brand equity for Australia as a long-haul tourism destination in an emerging market. *International Marketing Review* 27(4): 434-449. DOI: 10.1108 / 02651331011058590
- Sekaran, U. 2000. *Research Methods for business: A Skill Building Approach*. Singapore: John Wiley & Sons, Inc.
- Srihadi, R.F., Hartoyo, Sukandar, D & Maulana, A. 2015. Study of Service Marketing in the Indonesian Port Industry. *European Journal of Business and Management*. www.iiste.org ISSN 2222-1905 (Paper) ISSN 2222-2839 (Online) 7(32): 2015 11 A.
- Tran, T.V., Vo, T.Q.N., Cao, T.D. & Doan, T.H.T. 2017. Customer-based brand equity and its application to destination: a case of domestic tourists in Danang city, Vietnam. *Australian Journal of Basic and Applied Sciences* 9(23): 275-281.
- Tran, V.T., Nguyen, N.P., Kim-Tran, P.T., Tran, T.N. & Huynh, T.T.P. 2019. Brand equity in a tourism destination: a case study of domestic tourists in Hoi An city, Vietnam. *Tourism Review* 74(3): 704-720. [https:// doi.org/10.1108/TR-08-2017-0130](https://doi.org/10.1108/TR-08-2017-0130).
- Verhoef, P.C., Franses, P.H. & Hoesktra, J.C. 2002. The Effect of Relational Constructs on Customer Referrals and Number of Services Purchased From a Multiservice Provider: Does Age of Relationship Matter? *Journal of the Academy of Marketing Science* 30(3): 202-216.
- Yasin, N.M., Noor, N. & Mohamad, O. 2007. Does image of country-of-origin matter to brand equity? *Journal of Product & Brand Management* 16(1): 38-48. DOI: 10.1108/10610420710731142.
- Yoo, B. Donthu, N. & Lee, S. 2000. An Examination of Selected Marketing Mix Elements and Brand Equity. *Journal of the Academy of Marketing Science* 28(2): 195-211. DOI: 10.1177/0092070300282002
- Zikmund, W.G., Carr, B.J., Griffin, M. & Babin, B.J. 2013. *Business Research Method*. Fort Worth: Dryden Press.

Series: [Advances in Economics, Business and Management Research](#)

## Proceedings of the 18th International Symposium on Management (INSYMA 2021)

---

[HOME](#)


---

[PREFACE](#)


---

[ARTICLES](#)


---

[AUTHORS](#)


---

[SESSIONS](#)


---

[ORGANIZERS](#)


---

[PUBLISHING INFORMATION](#)
[<](#) [PREVIOUS VOLUME IN SERIES](#)
[NEXT VOLUME IN SERIES](#) [>](#)

The International Annual Symposium on Management INSYMA is a scientific event that has successfully been held for 17 years, and this year of 2021 is entering 18 years of its implementation. Human technology is increasingly developing over time, so that developed countries have begun to make changes. Economics is fundamental in today's life, for that Society 5.0 exists to integrate the real world and the virtual world. Society 5.0 is an era where all technology is part of the human beings. Society 5.0 is a concept where we use science IoT, big data, AI, robotics, etc. to "serve" human needs. The purpose of society 5.0 is to create a society where the people in it really enjoy a life full of lively activities and feel comfortable.

Please click [here](#) for the conference website.

### Atlantis Press

Atlantis Press – now part of Springer Nature – is a professional publisher of scientific, technical & medical (STM) proceedings, journals and books. We offer world-class services, fast turnaround times and personalised communication. The proceedings and journals on our platform are Open Access and generate millions of downloads every month.

For more information, please contact us at: [contact@atlantis-press.com](mailto:contact@atlantis-press.com)

[▶ PROCEEDINGS](#)
[▶ JOURNALS](#)
[▶ BOOKS](#)
[▶ POLICIES](#)
[▶ ABOUT](#)
[▶ NEWS](#)
[▶ CONTACT](#)
[▶ SEARCH](#)

Series: *Advances in Economics, Business and Management Research*

## Proceedings of the 18th International Symposium on Management (INSYMA 2021)

---

### Bibliographic information:

<b>Title</b>	Proceedings of the 18th International Symposium on Management (INSYMA 2021)
<b>Editors</b>	Dr. Werner R. Murhadi Dr. Dudi Anandya, Dr. Dr. Noviaty Kresna D. Dr. Juliani Dyah T. Dr. Putu Anom Mahadwartha
<b>Part of series</b>	<i>AEBMR</i>
<b>Volume</b>	180
<b>ISSN</b>	2352-5428
<b>ISBN</b>	978-94-6239-400-1



## Proceedings of the 18th International Symposium on Management (INSYMA 2021)

---

[+ Advanced search](#)

SEARCH

55 articles

---

Proceedings Article

### [The Application of TAM on Utilization of Financial Information Technology in South Sulawesi](#)

Ibrahim, Sri Rahayu Syah

In the industrial revolution era and information technology advancement, TAM must align with development and progress. TAM is believed able to fulfill the needs of relevant technology users. This study aims to analyze the factors that influence the utilization of regional financial information systems...

[Article details](#)

[Download article \(PDF\)](#)

---

Proceedings Article

### [Investor Attention and Broad Market Index: Evidence from Indonesia Composite Index](#)

Olivia Tanaya, Suyanto Suyanto

This study examines the relationship between investor attention and the broad market index in the Indonesia Composite Index (IHSG). In today's digital world, the search engine becomes the most important tool in looking for information. Google dominated the market share with 91.38% of people use it. This...

[Article details](#)

[Download article \(PDF\)](#)

---

Proceedings Article

### [Herding Behavior Detection: Bullish and Bearish Cases](#)

Tomy Koputra, Putu Anom Mahadwartha

This study aims to examine the presence of herding behavior on the Indonesian stock exchange (BEI), especially in the infrastructure, utilities, and transportation sectors. Daily data has been gathered for analysis from the 2013-2017 period, and this period was chosen to capture the extreme market movement...

[Article details](#)

[Download article \(PDF\)](#)

---

Proceedings Article

### Brand Equity of Banyuwangi as a Natural Tourism Destination

Siti Rahayu, Sugeng Hariadi

This study aims to investigate the brand equity of Banyuwangi city as a natural tourism branding. The questionnaire data is obtained from 160 local tourists who have traveled to Banyuwangi. Hypothesis testing is done by using a structural equation model. The results show that of the eleven hypotheses,...

- [Article details](#)
  - [Download article \(PDF\)](#)
- 

Proceedings Article

### Determination of Green Marketing Strategies Through Marketing Communication in the Business World in the Society 5.0 Era

Hayuning Purnama Dewi

Marketing communication in green marketing aims to influence purchase decisions for consumers interested in the green movement. In addition to product advantages and brand image, companies must also think about consumer transaction convenience. Consumers consider various transaction choices to facilitate...

- [Article details](#)
  - [Download article \(PDF\)](#)
- 

Proceedings Article

### The Linkage Among Demographic Factors, Perceived Mindful Marketing, and the Purchase Intention of Hand-weaving Products Customers

Junphen Wannarak, Patipol homyamyen, Thititana Trisit, Waiphot Kulachai, Adi Prasetyo Tedjakusuma

This research aims to examine the linkage among demographic factors, the perceived value of mindful marketing, and the purchase intention of customers of hand-weaving products in Suphanburi, Thailand. The samples of this study were 388 people visiting a community enterprise in Suphanburi. Questionnaires...

- [Article details](#)
  - [Download article \(PDF\)](#)
- 

Proceedings Article

### Trust or Usefulness? QR Code Payment Among Millennials in a Disrupted Market

Grace F. Djayapranata, Andhy Setyawan

The digitization trend has increased dramatically in the past decade. The development of the internet and the increasing use of smartphones worldwide indicate the starting of the industrial revolution 4.0, which is now moving into a society 5.0 era. This trend has affected almost all activities of human...

- [Article details](#)
  - [Download article \(PDF\)](#)
-