

ENVIRONMENTAL MANAGEMENT SYSTEM AND  
PRO-ENVIRONMENTAL BEHAVIOR WITH GREEN MARKETING MIX AS A  
MEDIATOR FOR SUSTAINABLE INDUSTRY PERFORMANCE IN  
HOTEL INDUSTRY IN EAST JAWA PROVINCE, INDONESIA

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## ABSTRACT

Tourism is developing and growing the economy, but it also has negative impacts that all parties must be aware of. Increased events such as floods, landslides, decreased water quality, and traffic jams due to tourist vehicles are some examples of the impacts caused by massive development growth, one of which is the tourism sector at the research site in East Java Province, Indonesia. This research is important because the tourism sector is the most effective sector to increase regional income. As one of the main pillars of tourism, the hotel industry needs to make a positive contribution to achieve Sustainable Tourism by reducing negative impacts. To achieve this Sustainable Tourism, the hotel industry needs to apply the principles and attributes that support the creation of Sustainable Industry Performance (SIP). The research question of this research is the extent to which the practice of Environmental Management System (EMS), Pro-Environmental Behavior (PEB), with Green Marketing Mix (GMM) as a mediator to achieve Sustainable Industry Performance (SIP). This study aims to develop a model of the relationship between EMS, PEB, GMM with 17 hypotheses to achieve SIP. The research was conducted using quantitative methods, obtaining data through surveys and processing using SmartPLS version 3. This study involved 206 data from data cleaning, which previously amounted to 228 data. The results of the study found 14 hypotheses were accepted, and three hypotheses were rejected. The results showed that the implementation of EMS had a significant relationship with SIP economic performance and social performance but did not have a relationship with environmental performance. PEB directly has a significant relationship with environmental performance but not with economic performance and social performance. GMM has a significant direct relationship with the three elements of SIP. The study results revealed that GMM became a suitable partial mediator for EMS and PEB to achieve SIP.

## ABSTRAK

Pelancongan sedang membangun dan mengembangkan ekonomi, tetapi ia juga mempunyai impak negatif yang mesti disedari oleh semua pihak. Peningkatan kejadian seperti banjir, tanah runtuh, penurunan kualiti air, dan kesesakan lalu lintas akibat kenderaan pelancong adalah beberapa contoh impak yang disebabkan oleh pertumbuhan pembangunan yang besar, salah satunya adalah sektor pelancongan di tapak penyelidikan di Provinsi Jawa Timur, Indonesia. Penyelidikan ini penting kerana sektor pelancongan merupakan sektor yang paling berkesan untuk meningkatkan pendapatan wilayah. Sebagai salah satu tonggak utama pelancongan, industri perhotelan perlu memberikan sumbangan positif untuk mencapai Pelancongan Lestari dengan mengurangkan kesan negatif. Untuk mencapai Pelancongan Lestari ini, industri perhotelan perlu menerapkan prinsip dan atribut yang menyokong penciptaan Prestasi Industri Lestari (SIP). Persoalan kajian dalam penyelidikan ini adalah sejauh mana amalan Sistem Pengurusan Alam Sekitar (EMS), Kelakuan Pro-Alam Sekitar (PEB), dengan Green Marketing Mix (GMM) sebagai orang tengah untuk mencapai Prestasi Industri Lestari (SIP). Kajian ini bertujuan untuk mengembangkan model hubungan antara EMS, PEB, GMM dengan 17 hipotesis untuk mencapai SIP. Penyelidikan dilakukan menggunakan kaedah kuantitatif, memperoleh data melalui tinjauan dan memproses menggunakan SmartPLS versi 3. Kajian ini melibatkan 206 data dari pembersihan data, yang sebelumnya berjumlah 228 data. Hasil kajian mendapati 14 hipotesis diterima, dan tiga hipotesis ditolak. Hasil kajian menunjukkan bahawa pelaksanaan EMS mempunyai hubungan yang signifikan dengan prestasi ekonomi SIP dan prestasi sosial tetapi tidak mempunyai hubungan dengan prestasi persekitaran. PEB secara langsung mempunyai hubungan yang signifikan dengan prestasi persekitaran tetapi tidak dengan prestasi ekonomi dan prestasi sosial. GMM mempunyai hubungan langsung yang signifikan dengan tiga elemen SIP. Hasil kajian menunjukkan bahawa GMM menjadi pengantara separa yang sesuai untuk EMS dan PEB untuk mencapai SIP.

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## LIST OF SYMBOLS AND ABBREVIATIONS

AMDAL	-	<i>Analisis Mengenai Dampak Lingkungan</i> (Environmental impact assessment)
BPS	-	<i>Badan Pusat Statistik</i> (BPS – Statistic of Indonesia)
CSR	-	Corporate Social Responsibility
DIKPLHD	-	<i>Dokumen Informasi Kinerja Pengelolaan Lingkungan Hidup Daerah</i> (Regional Environmental Management Performance Information Document)
EMS	-	Environment Management System
EMAS	-	Environmental Management and Audit Schemes
GMM	-	Green Marketing Mix
HEMI	-	Hotel Environmental Management Initiative
IKA	-	<i>Indeks Kualitas Air</i> (Water Quality Index)
PEB	-	Pro-Environmental Behaviour
PLS-SEM	-	Partial Least Squares - Structural Equation Modeling
RPL	-	Environmental Monitoring Plan
RKL	-	Environmental Management Plan
SIP	-	Sustainable Industry Performance



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## CHAPTER 1

### INTRODUCTION

#### 1.1 Background of Study

The growth of the tourism industry, especially the massive hotel development, supports economic development, but on the other hand, has an impact on the environment (Masa'deh *et al.*, 2017). It is noted that the negative impact on the environment stems from excessive tourism growth in an area occurring in several countries. Taking the example of the incident in Spain, the negative impacts of tourism growth resulted in increased pollution, environmental degradation, damage to biodiversity, waste generation, and overexploitation of non-renewable resources such as energy and water (Moliner *et al.*, 2019). Apart from Spain, this negative impact has been analyzed in various countries, such as the Netherlands (Postma & Schmuecker, 2017), Jordan (Masa'deh *et al.*, 2017), Taiwan (Peng & Chen, 2019), and Malaysia, Singapore and Thailand (Azam *et al.*, 2018). In Indonesia itself, the negative influence of the hotel industry has been reported by Wibowo *et al.* (2017), which discusses on the environment is the disruption of the natural environment, the built environment and the cultural environment.

The Environmental Management System (EMS) provides a framework for the organization to efficiently manage its environmental responsibilities, relating to reporting of what has been implemented and related to the environment, and the use of EMS for performance improvement. Effective implementation of an EMS should lead to continuous improvement in management actions, which are informed by monitoring key performance indicators related to those actions (Styles *et al.*, 2017). Environmental Management System (EMS) implemented in hotels in Indonesia

usually leads to ISO 14000, which is more general, on the other hand, there is EMS in the form of EMAS (Environmental Management and Audit Schemes), which is usually widely applied in European countries (Gorgemans & Murillo- Luna, 2016). In addition to implementing the Environmental Management System (EMS) formed by ISO 14000, Indonesia also has its own rules in environmental management called AMDAL (Environmental Impact Assessment) (Gravitiani, 2015). The difference between ISO 14000 implementation and AMDAL is the most significant. Conspicuous are: ISO 14000 is voluntary, while AMDAL is mandatory (Assa, 2021). Implementation of EMS in the hotel industry is a requirement for the construction of a hotel. However, the implementation of EMS in hotels is classified depending on the size and star level of a hotel.

Several previous studies have found that EMS has a positive relationship with Sustainable Industry Performance (SIP), which has three elements: Sustainable Economic Performance, Sustainable Environment Performance, and Sustainable Social Performance. Among other things, the relationship between EMS implementation and Sustainable Economic Performance is proven by Martín-de Castro *et al.* (2015); Gorgemans & Murillo-Luna (2016); Feng *et al.* (2016); Testa *et al.* (2016); Ikram *et al.* (2019); Wong *et al.* (2020). The relationship between EMS and Sustainable Environment Performance has been investigated by Gorgemans & Murillo-Luna (2016); Ikram *et al.* (2019); Wong *et al.* (2020); Mungai *et al.* (2020). Then the relationship between EMS and Sustainable Social performance was researched by Gorgemans & Murillo-Luna (2016); Ikram *et al.* (2019), Wong *et al.* (2020); Herghiligi *et al.* (2019). Some of the literature shows that there is a relationship between EMS and the three variables that make up SIP, namely: Economics, Environmental and Social.

Implementing Pro-Environmental Behavior (PEB) is voluntary for the tourism industry, especially the hotel industry (Fatoki, 2019). Several studies on the implementation of Pro-Environmental Behavior (PEB) in the Hotel Industry have proven that although Pro-Environmental Behavior (PEB) is voluntary, it has a positive impact on hotels (Li & Wu, 2019). The positive effects of PEB on the hotel industry include water-saving, energy-saving, and recycling behaviours (Dharmesti *et al.*, 2019). The relationship between PEB and SIP for Sustainable Economic Performance refers to research conducted by Ro *et al.* (2017) and Groening *et al.* (2018), while the relationship between PEB and SIP for Sustainable Environment Performance was

investigated by Uren *et al.* (2018); Zientara & Zamojska (2016); Elf *et al.* (2020); Gautam (2020); then the relationship between PEB and SIP for Sustainable Social Performance is following the opinion of Allen (2016) and Blankenberg & Alhusen (2019). As with EMS, some literature for PEB also shows its relationship with the Economics, Environmental and Social variables that make up the SIP.

On the other hand, the tourism sector plays an important role in helping to create a green and environmentally friendly hotel environment. The Ministry of Tourism and Creative Economy of the Republic of Indonesia has a high concern for playing an important role in encouraging hotels to take actions aimed at creating a better environment. Several hotel industries carry out policies to support a better environment by implementing green hotels in Indonesia. Green Marketing Mix (GMM) is one of the strategies used by several industries, including the hotel industry. Green Marketing Mix (GMM) has been shown to positively influence developments in the Hotel Industry (Mele *et al.*, 2019). In addition, the Green Marketing Mix (GMM) also has a positive influence on the parameters of Sustainable Industry Performance (SIP), which consists of Economy, Environmental, and Social Performances. The relationship between GMM and SIP for Sustainable Economic Performance refers to research conducted by Lee Lam & Li (2019); Pomeroy (2017); Hasan & Ali (2017), while the relationship between GMM and SIP for Sustainable Environment Performance was investigated by Pomeroy (2017); Hasan & Ali (2017); D'Souza *et al.* (2015); then the relationship between GMM and SIP for Sustainable Social Performance is under the opinion of Pomeroy (2017); Hasan & Ali (2017); D'Souza *et al.* (2015). Based on several previous studies, GMM has a relationship with SIP as the dependent variable. The results of the literature show that GMM has a positive relationship with Economy Sustainable Performance, Environmental Sustainable Performance, and Social Sustainable Performance from various types of industries, including the hotel industry.

Sustainable Industry Performance (SIP) according to Hourneaux *et al.* (2018), using the triple bottom line approach that is divided into three indicators, i.e: (1) economic, (2) social and (3) environmental. The management of sustainable tourism development applies to all forms of tourism and their supporting industries. The principles of sustainable tourism refer to three aspects, namely (1) the environment, (2) the economy, and (3) the socio-cultural aspects of tourism development. The

balance between these three aspects is to ensure the long-term sustainability of tourism development (UNWTO, 2019).

Sustainable Industry Performance (SIP) in the hotel industry can be interpreted that the sustainability of the hotel business is determined by three main things in sustainable development, namely Economic, Environmental and Social. SIP for the economic sector in hotels means that from the business side, there is economic growth in terms of hotel income. The efforts carried out must remain profitable for hotel owners, can still run hotel operations, including paying the obligations and rights of hotel employees for a certain period of time (Jones *et al.*, 2016). Achieving economic performance also means achieving better financial performance. The link between the issue of savings and environmental issues in the environmentally friendly hotel industry is based on: preserving the environment and reducing negative impacts, operating cost efficiency and cost control and efficiency for energy, increasing customer satisfaction, creating a better brand reputation, image and quality and providing competitiveness (Duric *at al.*, 2021).

The increase in environmental pollution is forcing all hotels to implement environmentally friendly businesses, manage environmental performance and publish public reports, thereby contributing to environmental protection. By implementing sustainable practices, they achieve many benefits that contribute to improvements and more successful businesses, preserving the local economy and driving greater awareness of sustainability among guests and staff. Environmental Performance Management enables the hotel industry to gain insight into the efficiency of all activities and actions they implement in their hotels to minimize their negative impact on the environment, from energy use and emission reductions, water consumption and waste reduction to hotel cost management to achieve results and performance the best possible hotel (Duric *at al.*, 2021). SIP in the environmental field in the hotel industry means that the environment and ecosystems in the hotel area and the environment around the hotel are maintained in a sustainable manner for a long period of time.

SIP in the social field for the hotel industry can be interpreted that the existence of a hotel in an area does not change or do not damage the social and cultural values of the surrounding area. In fact, it would be better if the existence of a hotel in an area guarantees the quality of the socio-cultural values of the surrounding community. In some good examples, there are hotels that invite cultural arts as one of

the performances presented to entertain guests and introduce local culture to hotel guests.

## 1.2 Tourism Industry Development

The tourism industry is one of the industries that supports the largest economy in the world. Travel & Tourism can create jobs, boost exports and contribute to prosperity around the world. The 2017 report issued by the Beijing-based World Tourism Cities Federation (WTCF) stated that the total number of foreign tourist visits increased to 11.9 billion. Foreign tourist visits an average annual growth rate of 6.8%.

The World Travel & Tourism Council in 2018 provides an analysis of global economic influences originating from the Tourism & Travel sector. This sector is calculated to contribute as much as 10.4% of global Gross Domestic Product (GDP) and provides employment opportunities of 313 million. The global GDP growth in the travel and tourism sector is above Global GDP, which The World Bank estimates to be 3.1%. So, it is not wrong if many countries try to attract as much interest as possible from foreign tourists.

Comparison between actual and forecast for the growth of the tourism sector from 1995 to 2018 shows that the actual growth of tourism growth is above the plan (UNWTO World Tourism Barometer, 2019). This illustrates that the possibility of global tourism growth will develop in the future, more than previously thought. Actual trends versus forecasts for tourism in the world can be seen in Figure 1.1 below.

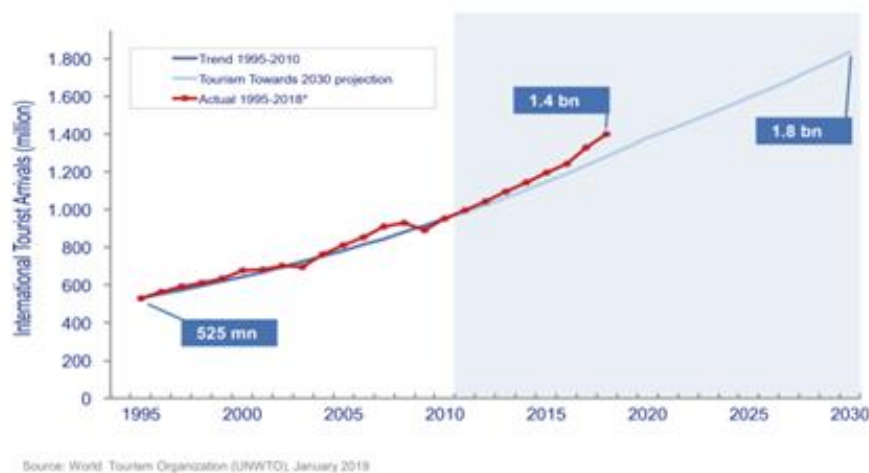


Figure 1.1: Actual Trends and Forecasts of Tourism in the World 1995 - 2030  
(UNWTO World Tourism Barometer, 2019)

The increasing number of tourist visits in the world influences on increasing global income from the tourism sector. Data from Statista in Figure 1.2 shows related to the contribution of travel and tourism as an economic driver of GDP worldwide from 2006 to 2017 illustrates that the economic contribution of tourism and travel to the global economy shows an increase. For direct contributions in 2006 worth US \$ 1.91 trillion, while in 2017 it was the US \$ 2.57 trillion, an increase of 35% over 11 years. Similarly, when viewed from the total contribution in 2006 of US \$ 6.03 trillion to the US \$ 8.27 trillion in 2017 (WTTC at Statista, 2019).

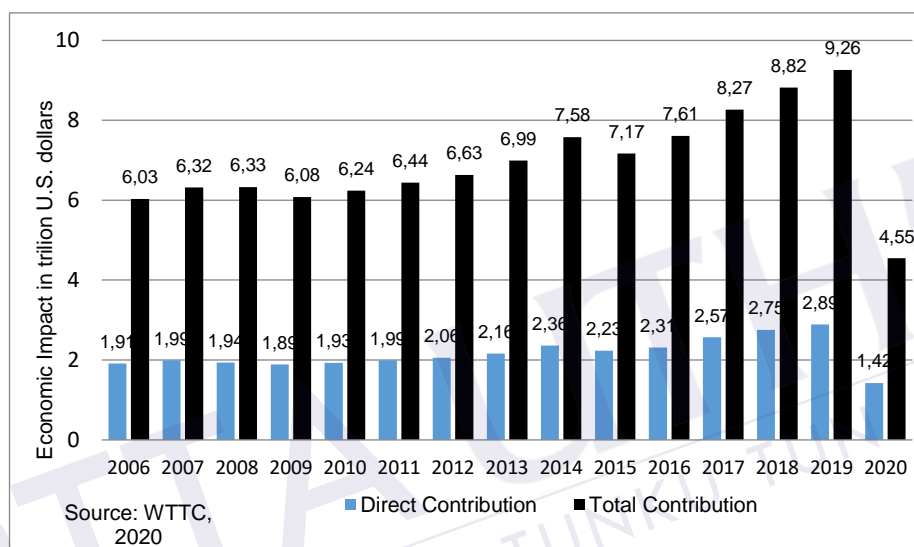


Figure 1.2: Direct and Total Contribution of Travel and Tourism to GDP Worldwide from 2006 to 2020 (WTTC, 2020)

UNWTO (United Nations World Tourism Organization) in the International Recommendations for Tourism Statistics 2008, describes several Tourism Industries which include: (1) Accommodation for visitors, (2) Food and beverage service activities, (3) Passenger transportation, (4) Travel Agents and (5) Other reservation activities. The hotel industry itself is part of the tourism industry that provides accommodation for visitors. In its development, many hotels are also developing their business by providing food and beverage services, this is because some hotels have kitchen facilities and a team that cooks them.



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## APPENDIX A3

### List of Publications

#### Journals

- 1 **Rainanto, B. H.**, Bon, A. T., Mekaniwati, A., & Melle, J.V. (2021). Interaction of Green Marketing Mix (GMM) and Pro-Environmental Behavior (PEB) in the Hotel Industry to Achieve Sustainable Industry Performance (SIP). *Review of International Geographical Education Online* , 11(3), pp. 1666-1675
- 2 **Rainanto, B. H.**, Bon, A. T., Mekaniwati, A., Wibowo, W. (2021). Implementation of Environmental Management System (EMS) and Pro-Environmental Behaviour (PEB) to Achieve Sustainable Industrial Performance for Non-Star Hotels in the Early Months of the Covid-19 Pandemic. *Journal of Sustainability Science and Management*.
- 3 **Rainanto, B. H.**, Bon, A. T., & Purba, J. H. V. (2020). Environmental Management System (EMS) and Green Marketing Mix (7Ps) for Hotel Sustainable Industrial Performance: A Conceptual Model. *International Journal of Advanced Science and Technology*, vol.29 No. 7s (special issues), pp.3724-3732. (Scopus indexed)
- 4 **Rainanto, B. H.**, Bon, A. T., & Purba, J. H. V. (2020). Environmental Variable for Sustainable Industry Performance with the Green Marketing Mix: Preliminary Study. *International Journal of Advanced Science and Technology*, vol.29 No. 7s (special issues), pp. 3744-3759. (Scopus indexed)

#### Conference Participation

- 1 **Rainanto, B. H.**, Bon, A. T., & Purba, J. H. V. (2020, 16 – 17 April). Environmental Management System (EMS) and Green Marketing Mix (7Ps) for Hotel Sustainable Industrial Performance: A Conceptual Model. Paper presented at the 5th International Conference on Operations Research 2020. Indonesian Operations Research Association (IORA). Atma Jaya Catholic University of Indonesia, Jakarta, Indonesia.

- 2 **Rainanto, B. H.**, Bon, A. T., & Purba, J. H. V. (2020, 16 – 17 April). Environmental Variable for Sustainable Industry Performance with the Green Marketing Mix: Preliminary Study. Paper presented at the 5th International Conference on Operations Research 2020. Indonesian Operations Research Association (IORA). Atma Jaya Catholic University of Indonesia, Jakarta, Indonesia.
- 3 **Rainanto, B.H.**, Bon, A. T., Farradia, Y., Mekaniwati, A., Rudyanto, B. (2021, 23 December). The Green Marketing Management (GMM) become a Mediator for the Environmental Management System (EMS) and Pro-Environmental Behavior (PEB) in Realizing the Sustainable Industry Performance. The 10th Indonesian Operations Research Association (IORA) - International Conference on Global Optimization and Its Applications (ICoGOIA) 2021. Institut Bisnis dan Informatika Kesatuan, Bogor, Indonesia.
- 4 **Rainanto, B.H.**, Bon, A. T., Mulyana, M., Dinitri, S., Melle, J.V. (2021, 23 December). The Modeling Concept of the Sustainable Industry Performance for the Hospitality Industry Using the Pro-Environmental Behavior and Green Marketing Mix Indicators Approach. The 10th Indonesian Operations Research Association (IORA) - International Conference on Global Optimization and Its Applications (ICoGOIA) 2021. Institut Bisnis dan Informatika Kesatuan, Bogor, Indonesia.
- 5 Farradia, Y., Muharam, **Rainanto, B.H.**, Salmah. (2021, 23 December). The Intention to do Ecotourism in Indonesia Toward Tourism Sustainability Prospect. The 10<sup>th</sup> Indonesian Operations Research Association (IORA) - International Conference on Global Optimization and Its Applications (ICoGOIA) 2021. Institut Bisnis dan Informatika Kesatuan, Bogor, Indonesia.
- 6 Immanuel, C., Utari, W.D., **Rainanto, B.H.** (2021, 23 December). Development of Bird Ecotourism into Tourism Destinations Based on the Important Bird Areas (IBAs) in Gunung Gede Pangrango National Park, West Java Province. The 10th Indonesian Operations Research Association (IORA) - International Conference on Global Optimization and Its Applications (ICoGOIA) 2021. Institut Bisnis dan Informatika Kesatuan, Bogor, Indonesia.
- 7 Misbahudin, M., Sulistiono, S., Saragi, C.P., **Rainanto, B.H.**, Oktaviani, Q. (2021, 23 December). The Influence of Green Marketing Factors On Consumers Decisions to Camp Hulu Cai Tourism Destination. The 10th Indonesian

- Operations Research Association (IORA) - International Conference on Global Optimization and Its Applications (ICoGOIA) 2021. Institut Bisnis dan Informatika Kesatuan, Bogor, Indonesia.
- 8 Chandra, R.A., **Rainanto, B.H.**, Saragi, C.P. (2021, 23 December). Food Quality and Meeting Room Facilities at Pesona Alam Resort & Spa that affect Meeting Participants' Customer Satisfaction. The 10th Indonesian Operations Research Association (IORA) - International Conference on Global Optimization and Its Applications (ICoGOIA) 2021. Institut Bisnis dan Informatika Kesatuan, Bogor, Indonesia.
  - 9 Mekaniwati, A., Bon, A. T., **Rainanto, B.H.** (2021, 23 December). Conceptual Model in Creating a Sustainable Batik Industry Performance Due to the Impact of the Covid-19 Pandemic with Indicators of Dynamic Capability and Marketing Orientation and Digital Marketing as a Mediator. The 10th Indonesian Operations Research Association (IORA) - International Conference on Global Optimization and Its Applications (ICoGOIA) 2021. Institut Bisnis dan Informatika Kesatuan, Bogor, Indonesia.
  - 10 Nurjannah, M., **Rainanto, B.H.**, Ramadhani, F.R., Hadi, C.V.S., Melle, J.V. (2021, 23 December). The Effect of Service Excellent on Achieving Company Goals and Consumer Satisfaction on Family Karaoke Business. The 10th Indonesian Operations Research Association (IORA) - International Conference on Global Optimization and Its Applications (ICoGOIA) 2021. Institut Bisnis dan Informatika Kesatuan, Bogor, Indonesia.
  - 11 Saragi, C.P., & **Rainanto, B.H.** (2021, 23 December). The relationship between university brand trust and personal selling on students' decisions to choose tourism majors. The 10th Indonesian Operations Research Association (IORA) - International Conference on Global Optimization and Its Applications (ICoGOIA) 2021. Institut Bisnis dan Informatika Kesatuan, Bogor, Indonesia.
  - 12 Yuwantiningrum, S.E., Priatna D.K., **Rainanto, B.H.**, Melle, J.V. (2021, 23 December). The Relationship Between Service Quality and Price with Hotel Guest Decisions at Fave Hotel Padjajaran Bogor. The 10th Indonesian Operations Research Association (IORA) - International Conference on Global Optimization and Its Applications (ICoGOIA) 2021. Institut Bisnis dan Informatika Kesatuan, Bogor, Indonesia.

## VITA

The author was born on December 7, 1974, in Probolinggo, Indonesia. He lives moving from one city to another because his father is a sugar factory employee. He moved to the town of Bondowoso Regency when he finished elementary school, then moved again to Situbondo Regency during junior high school. Then go to Probolinggo City for high school. He pursued a bachelor's degree at Brawijaya University, Indonesia, and graduated with an S.Pi degree in the Department of Water Resources Management at the Faculty of Fisheries in 1997. After graduating, he worked as a staff assistant at a consulting firm Pacific Consultant International. He moved to Jakarta to establish a consulting firm and once handled projects funded by the Japan International Cooperation Agency (JICA), the Islamic Development Bank (IDB), and became the Team Leader in projects funded by the World Bank (WB). In 2003 he completed his master's degree at the University of IPB, Bogor, Indonesia with a major in Marketing Management. While working as a consultant, he also taught at the Institute of Business and Information of Kesatuan (IBIK). He teaches a number of marketing-related subjects such as marketing management, international marketing, marketing in services business, marketing research, entrepreneurship and tourism business feasibility studies. Currently he is the Head of the Tourism Study Program, under the Faculty of Informatics and Tourism. In 2019, Mr. Bambang Hengky Rainanto attended The Universiti Tun Hussein Onn Postgraduate School and was accepted into the Ph.D. Technology Management Program. So far, Mr. Bambang has co-authored four papers in the field of environmental management and marketing management. Two papers have been published, while the rest are still in the process of publishing.

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