

## Understanding science and technology in Indonesia

### *Introduction*

Indonesia is the largest economy in the Southeast Asia Economic Community and a member of the G-20. The Indonesian economic growth is supported by a large population (260 million, the fourth largest in the world) in which the majority is productive and expanding middle-class income. With a relatively stable and strong economic growth, Indonesia is now the world's tenth-largest economy in purchasing power parity terms and is predicted to become the fourth-largest economy by 2050.

Although Indonesia is a developing country, the development of science and technology is strong and supported by thousands of universities and research centers. Nevertheless, in terms of the Global Competitive Index, Indonesia's rank is rather good (rank 45 out of 140 countries, 2018), but a rather low position in the Global Innovation Index (rank 85 out of 129 countries, 2019). Indonesia is full of creative and innovative millennials who can quickly adapt and develop science and technology for the country's need. It seems the country needs better policy and management of science and technology development to tap and strengthen the creativity and innovation of Indonesian academics, researchers and millennials.

The special issue aims to provide research progress and critical analysis of the state of the art of technological innovations in Indonesia so that readers can have clear insights about them from this important country.

### *Contents of the special issue*

The special issue titled "Management of policy and technological innovation in Indonesia" presents a collection of nine papers.

The paper titled "Business incubator effectiveness and commercialization strategy: a thematic analysis" studies "the effectiveness of the business incubator and its impact on commercialization strategies based on incubatees' aspirations in three business incubators in Indonesia. A qualitative approach was used and this involved conducting semi-structured in-depth interviews on fourteen startup owners that are tenants in three incubators in Indonesia. The data obtained were analyzed using a thematic analysis assisted with NVivo 12. Business incubator effectiveness was found to be heavily dependent on incubatees' satisfaction in their interactions with the incubators. Moreover, some patterns were formed from thematic analysis and used to produce three propositions".

The paper titled "The role of customer education: a repeated cross-sectional study" states that "customer education is considered as an appropriate communication strategy for promoting green products. This paper aims to elaborate on the characteristics of customer education that are suitable for green products by identifying what messages must be delivered, sources and channels that must be used to achieve the greatest effect. Moreover, this study uses a repeated cross-sectional approach by using the same research model in 2008 and 2019. A questionnaire was arranged based on the research model. In 2008, the data were collected at 12 shopping malls in Jakarta. The 2019 data were collected online, using Google forms, from citizens of Jakarta and five nearby cities. Then, the data were processed using structural equation modeling.

Data analysis of both years shows that education containing messages that are both informational and transformational can increase customers' perceptions of the benefits and economic accessibility of green products, as well as environmental concerns. This study's results



also indicate that customers' intentions to buy green products are influenced by their attitudes toward buying. However, the impact of customers' perceptions of benefit and economic accessibility on their attitudes toward green purchasing varied between 2008 and 2019".

The paper titled "Business financing and blockchain technology adoption in agroindustry" analyses "patterns of business financing and adoption of blockchain technology in the agricultural industry. The adoption of blockchain technology in terms of recording, storing, validating and securing data can solve a variety of agricultural problems such as agricultural business financing. If the banking and insurance industries are connected in real-time to activity data in the agricultural industry, they can create better credit ratings and profile models. So finally all parties in the agricultural industry have a greater chance to get business financing from banks. This paper uses a case study research approach with a framework of analysis of the theory of adoption of technology, organization and environment (TOE) and the theory of 'mindfulness of adoption'. The case study method has advantages when verification is still questioned or the application of certain theories in practice as phenomena and contexts that occur in the field in accordance with the application of blockchain technology into a relatively new business, both technically and practically in the field".

The paper titled "Investigating the Influence of Transparency on the Adoption of E-Government in Indonesia" explores "critical factors for the adoption of e-Government in Indonesia from the perspective of citizens. To fulfil this aim, a research model is developed through a comprehensive review of the related literature. Such a model is tested and validated using structured equation modelling (SEM) on the survey data collected from citizens in Indonesia. This leads to the identification of the critical factors including performance expectancy, effort expectancy, social influence, facilitating conditions and transparency for the adoption of eGovernment. This study has implications for both theory building and management practice. From the theoretical perspective, the use of the unified theory of acceptance and use of technology model is extended by incorporating the transparency factor that is vital to the adoption of e-Government in developing countries such as Indonesia. In terms of managerial and policy implications, this research offers the Indonesian Government and public organizations with relevant suggestions on how the adoption of e-Government can be improved".

The paper titled "Entrepreneurial Orientation, knowledge management, dynamic capabilities towards e-commerce adoption of SMEs in Indonesia" studies "the dimensions of entrepreneurial orientation, knowledge management process, and dynamic capability towards the adoption of e-commerce of SMEs in North Sumatera. This study used a quantitative methodology using Smart PLS of structural equation model (SEM). A survey is done by distributing the questionnaires to the respondents (owner-managers) of SMEs across sectors. Using a convenient sampling technique, 131 respondents were selected. Using a cross-sectional survey design, 11 hypotheses were tested. Findings – It is found that EO (innovativeness, proactiveness) both has a significant relationship with e-commerce adoption, whereas the risk-taking of EO is found as insignificant. Both risk-taking and proactiveness of EO are significantly related to knowledge management process, but innovation of EO is found insignificant. Moreover, KMP significantly mediates the relationship between risk-taking and proactiveness of EO and e-commerce adoption, whereas KMP insignificantly mediates the relationship between innovativeness of EO and e-commerce adoption. Finally, it is found that dynamic capability has a significant relationship in ecommerce adoption".

The paper titled "Spatial-based model for oil palm plantation suitability rating and its smallholder farmers' competitiveness: A case study at Kampar Regency, Riau Province, Indonesia" elaborates "models to classify independent smallholder farmers' (ISFs) plantation suitability and its

competitiveness index. It proposes the models with the objective to accommodate ISFs as the main source of raw material for the palm oil industry. It was predicted that the supply of oil palm fresh fruit bunch would depend on ISFs' plantations due to the government policy that restricts the expansion of the plantations. The study was designed using a geographic information system approach and analytical hierarchy process for mapping the suitability of smallholder farmers' oil palm plantation in the Kampar Regency. The competitiveness index was measured using a modified Diamond Porter framework and competitiveness index quantification. The model was conducted on 177 respondents from five districts in Kampar Regency. The paper includes implications for developing ISFs' capacity building and best practice management for oil palm optimization, resulting in bargaining positions and social wellbeing".

The paper titled "A paradigm shift in financial landscape: encouraging collaboration and innovation among Indonesian fintech lending players" explores "the FinTech lending industry structure and strategies executed by the firms. The Porter's Five Forces uses as a guide to understand the FinTech lending industrial structure. Moreover, to grasp a more detailed strategy of FinTech lending players and the nature of the industry, we follow up with direct interviews with experts and FinTech lending executives. The interviews investigate firms' competitive strategies in facing the industry, such as the impact of the industrial structure and resources on the firm strategies, the availability of competition practices, and the government's role in shaping the business".

The paper titled "Investigating the logistics costs model: Recent update in Indonesia" aims to enhance knowledge about "defining precisely variables of logistics costs model in Indonesia's cement projects and generally other projects scientifically. The variables have previously so far been identified based on pragmatism and practical experience without rigorous scientific and empirical findings. The models are deeply awaited by every project practitioner especially project controllers in the country. The period data taken was 2010 to 2018 of eight cement projects in quarterly and tested with a statistical tool EVIEWS10 to develop a robust proposed model. Investigating models were done by literature studies and empirical studies, and the results had been examined by statistical tests to be determined as robust or not-robust models. The period taken due to availability of the cement projects as following years after up to 2020 were unavailability cement projects as overcapacity in Indonesia".

Finally, the last paper is titled "Innovation of SME service industry in Indonesia in improving customer satisfaction" conducts a study that "will give feedback for SME in Service Industry to solve the problem about company's service quality from the customer's point of view, then company can determine the priority of improving service quality attributes using IPA and finally, the company can determine the strategic priority actions that need to be achieved in the future by using QFD".

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