# INNOVATION DEVELOPMENT OF SMALL BUSINESS IN INDONESIA

## Intan Permana

Universitas Garut, West Java, Indonesia

## **Tomas Chochole**

University of West Bohemia in Pilsen, Pilsen County, Czech Republic

## Nizar Alam Hamdani

Universitas Garut, West Java, Indonesia

## Retno Purwani Sari

Universitas Komputer Indonesia, West Java, Indonesia

### ABSTRACT

This study examines the factors influencing innovation development in small businesses in Indonesia across various sectors. Innovation is widely recognized as a critical factor in the competitiveness of businesses. This development potential is essential for the entrepreneurs who participated in the questionnaire survey. In fact, out of a total of 85.50% of them are already currently running a business, and they also consider innovation very important. A sample of 400 small business owners was analyzed using descriptive analysis to identify eight factors related to innovation development, including knowledge exploitation, interactive processes, knowledge-intensive business process improvement, new technology-based firms, go-to-market strategies, stricter regulation, and stimulation. The results revealed that three factors were particularly dominant in innovation development. Specifically, knowledge exploitation was strongly correlated with knowledge-intensive, while interactive processes were strongly correlated with knowledge intensive was strongly related to knowledge exploitation. These findings underscore the importance of knowledge and interaction in driving innovation among small businesses in Indonesia. By prioritizing these dominant factors, small businesses can develop strategies to remain competitive in a rapidly evolving business environment.

Keywords: innovation development; interactive process; knowledge exploitation; knowledge intensive

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### INTRODUCTION

Small businesses are essential to Indonesia's economy, playing a crucial role in creating jobs, generating income, and reducing poverty.

However, the COVID-19 pandemic has presented significant challenges for these businesses, forcing them to adapt and transform their process to succeed in the post-pandemic business environment. To achieve this aim, multidisciplinary teams use innovative communication methods and involve product designers to drive innovation (Chochole, 2022). As a result, innovation development has become a top priority for small businesses to ensure their sustainability and growth. In fact, small businesses prioritize innovation acceleration in advanced nations to stay competitive (Babenko et al., 2020). Innovation refers to a deliberate and planned renewal or change aimed at improvement.

Given that innovation development is a rapidly evolving field of great importance for small businesses to build adequate capabilities (Granata et al., 2019), there is a debate about the role of innovation in increasing sustainability. This study aims to explore the current state of innovation development in small businesses in Indonesia and identify factors that encourage and support innovation development. By doing so, we can better understand small businesses' potential to drive Indonesia's economic growth and development.

Small businesses in developing countries face additional barriers to innovation compared to technologically advanced nations (hi-tech countries) due to inadequate institutional support, resources, capabilities, and additional Meanwhile. risks (Raghuvanshi, 2020). innovation development leads to the degradation of all business scales (Hervas-Oliver et al., 2020). Innovation development is critical for firms to achieve sustained competitive advantage and greater profitability (McDowell et al., 2018a). Innovation has been shown to influence an enterprise's growth regardless of the larger economy's macroeconomic context (Yew, 2021). Thus, paying attention to this innovation is essential because it generates competitiveness and improves business performance (Hamdani & Susilawati, 2018). Unfortunately, Indonesia's innovation performance lags behind other countries in the region, as evidenced by its poor scores on innovation indicators (see Table 1). At the same time, the study also explored the attitudes and experiences of a select group of small business owners to stimulate creative thinking toward opportunities innovation and new in entrepreneurship (Smith et al., 2013).

| No | Indicators                       | Score |
|----|----------------------------------|-------|
| 1  | Institutions                     | 55.1  |
| 2  | Infrastructure                   | 43.4  |
| 3  | Market sophistication            | 41.7  |
| 4  | Human capital and research       | 22.4  |
| 5  | Business sophistication          | 22.1  |
| 6  | Knowledge and technology outputs | 19.0  |
| 7  | Creative outputs                 | 18.6  |

 Table 1: Indonesia Innovation Index 2022

Source: (Dutta et al., 2022)

According to the Global Innovation Index, Indonesia ranked 87<sup>th</sup> in 2021, while other countries such as Singapore, Malaysia, Thailand, Vietnam, Philippines, and Brunei Darussalam rank much higher, with respective rankings of 8<sup>th</sup>, 36<sup>th</sup>, 43<sup>rd</sup>, 44<sup>th</sup>, 51<sup>st</sup>, and 82<sup>nd</sup>. Business sophistication, a key indicator of innovation performance, scored 17.5. Indonesia ranks 110<sup>th</sup> due to low scores in knowledge absorption (23.4), relevance of innovation (20.7), and worker knowledge (8.0) (Global Innovation Index, 2021).

To improve the performance of small businesses in Indonesia must be creative and innovative to remain competitive in the current business environment (Kiron & Kannan, 2018). The strategic step that must be taken by marketing managers is to identify the business environment first, before determining the strategy that will be used by the company (Permana et al., 2023). Innovation is essential for their survival, especially during the growth phase (Hamdani et al., 2022). Therefore, it is crucial to identify and address small businesses' barriers to developing innovative strategies.

This study examines the factors that can impact innovation development in small businesses across all sectors in Indonesia. Although the study may resemble causal research, it focuses on identifying key factors influencing innovation development in small businesses rather than establishing causal relationships. However, a questionnaire survey further enhanced this research approach to achieve a more comprehensive view of the small business sector in which some of the groups are already business owners. Therefore, it is more appropriate to use confirmatory factor analysis in applied research to confirm the findings in the social research field.

### LITERATURE REVIEW

The innovation model and entrepreneurial model represent two different approaches to business development. The innovation model emphasizes the generation of new ideas and technologies, while the entrepreneurial model emphasizes the ability to find the right market, adapt to changing circumstances, and learn from the environment. To support the implementation of innovation processes within small and medium-sized enterprises (SMEs), universities often rely on technology transfer offices to disseminate research results (Camargo et al., 2021). Entrepreneurs can also generate new ideas and innovations to improve their businesses (Setiawan et al., 2020). However, only some studies have addressed the factors that drive innovative performance in small businesses (Abdul-Halim et al., 2018). Politicians, scientists, and the media have yet to fully understand the close, almost inseparable link between research and innovation. This lack of understanding represents one of the barriers to effective innovation development in small businesses in traditional sectors. The development of local innovation in the Indonesian economy can be promoted by describing the conditions and factors that influence the formation of competitive models of technological collaboration between state representatives, science, and business. In Indonesia. the poly-level complementary entrepreneurial successfully model has promoted local innovation, with most of the funding coming from national and supranational sources. However, there is still a need to find ways to encourage small and medium-sized businesses to be more innovative and creative.

Innovation is identifying a problem and actively seeking a solution (Permana et al., 2020). It involves leveraging knowledge and expertise within a company to create new or improved products, services, or processes (McDowell et al., 2018b). For SMEs, focusing on incremental innovation, which seeks to improve existing offerings, can be more effective than pursuing radical, "new-to-market" innovation (Pratono, 2018). Since SMEs represent over 90% of all active businesses worldwide, they have a critical role in driving economic growth (Mellett et al., 2018).

Small businesses can drive innovation by constantly transforming green-focused knowledge and concepts into fresh products, processes, and systems that enhance the organization and its stakeholders. Building an innovative culture and value system is essential for fostering innovation capability (Mellett et al., 2018). Innovation development is now seen as a collaborative and interactive process that involves intensive moves generating and sharing ideas, information, and knowledge within and beyond the organization (Gamidullaeva, 2018). Market mechanisms need to be expanded to stimulate innovation at the micro level (Babenko et al., 2020).

Several factors drive innovation in small businesses, such as improving product quality, reducing product costs, extending product range, learning about new technology, increasing market share, enhancing production flexibility, opening new markets, reducing energy consumption, improving working conditions, and meeting regulatory requirements (Kiron & Kannan, 2018). This study aims to help small business owners understand the driving power and dependence of each of these factors in developing their innovation strategies. Table 2 summarizes the literature synthesis, gaps, and indicators for innovation development.

Furthermore, exploiting knowledge is crucial for organizations to approach contextual factors differently (Gonzalez & Melo, 2018). In this sense, the main objective of this study is to examine how five factors in the organizational context (Human Resource Management, Supportive Leadership, Learning Culture, Autonomy, and Information Technology system) are associated with the innovation process stemming from knowledge exploration and exploitation in any industry. Interactive process discovery techniques blend manual process modeling with data support, allowing users to incorporate domain knowledge while discovering process models (Dixit et al., 2018). By enabling users to specify domain knowledge

while discovering process models with event logs, interactive process discovery is faster, more

robust, and provides valuable diagnostic information during the process.

| Empirical study                          | Factors considered to<br>Innovation Development (ID) | Category in the current study      |  |
|------------------------------------------|------------------------------------------------------|------------------------------------|--|
| (McDowell et al.,<br>2018b)              | Exploitation of knowledge                            | Knowledge Exploitation (KE)        |  |
| (Mellett et al., 2018)                   | Building an interactive process                      | Interactive process (IP)           |  |
| (Gamidullaeva, 2018)                     | Intensive moves                                      | Knowledge Intensive (KI)           |  |
|                                          | Intensive ideas                                      | Knowledge Intensive (KI)           |  |
|                                          | Intensive information                                | Knowledge Intensive (KI)           |  |
|                                          | Intensive facts                                      | Knowledge Intensive (KI)           |  |
| (Kiron & Kannan, 2018)                   | Improvement in product quality                       | Business process improvement (BPI) |  |
|                                          | Reduction in product cost                            | Business process improvement (BPI) |  |
|                                          | Extension of the product range                       | Business process improvement (BPI) |  |
|                                          | Learn about new technology                           | New technology-based firms (NTBF)  |  |
|                                          | Increase in market share                             | Go-to-market (GTM)                 |  |
|                                          | Production flexibility                               | Business process improvement (BPI) |  |
|                                          | Open of new market                                   | Go-to-market (GTM)                 |  |
|                                          | Reducing energy consumption                          | Business process improvement (BPI) |  |
|                                          | Improvement in working                               | Business process improvement (BPI) |  |
|                                          | conditions                                           | Stricter regulation (SR)           |  |
|                                          | Fulfillment of regulations                           |                                    |  |
| (Babenko et al., 2020) Market mechanisms |                                                      | Go-to-market (GTM)                 |  |
|                                          | Stimulating                                          | Stimulating (ST)                   |  |
| (Camargo et al., 2021)                   | Technological transfer                               | New technology-based firms (NTBF)  |  |

| Table 2: | Literature synthe | esis, gaps, and | indicators |
|----------|-------------------|-----------------|------------|
|----------|-------------------|-----------------|------------|

Source: Author's work

Knowledge-intensive innovative entrepreneurship integrates theoretical building blocks from Schumpeterian entrepreneurship, evolutionary economics, and innovation systems. Knowledgeintensive innovative entrepreneurial ventures are defined as new learning organizations that use and transform existing knowledge and generate new knowledge to innovate within innovation systems (Aureli et al., 2018). Knowledge-intensive innovative entrepreneurship involves learning and problem-solving to identify, create, and exploit opportunities. These activities are influenced by linkages and networks related to innovation systems. A highly stylized process model of knowledge-intensive innovative entrepreneurship includes 1) the origins of the knowledge-intensive entrepreneurship (KIE) venture; 2) the role of knowledge, opportunities, and market conditions in affecting learning throughout the entrepreneurial process; 3) the between the management and linkages development of the new venture and innovation

systems, with many two-way interactions to actors and institutions; 4) the performance of the new firm in terms of innovation, profitability, and growth; and 5) the role of the entrepreneurial venture in selection and the dynamics of market structure (Malerba & McKelvey, 2020).

### METHODOLOGY

This article presents a causal research study with a 95% confidence interval. The researchers collected data and used Confirmatory Factor Analysis (CFA) to analyze the research variables. CFA is a reliable method to test the validity of a measuring instrument in psychology, education, and social sciences (Creswell & Creswell, 2018). It helps to identify possible latent observable variables and determine whether a set of variables correlates with each other and whether they measure the intended construct. With descriptive, it can be tested (confirmed) to what extent. All items from the test do measure or provide information about the innovation development to be measured. If this theory is true, the supposed "one-factor model" will "fit" with the data. The one-factor or "unidimensional model" is used to test this principle. The study's relational framework is shown in Figure 1.



**Figure 1:** Research propositions Source: (Camargo et al., 2021; McDowell et al., 2018b; Pratono, 2018; Mellett et al., 2018; Gamidullaeva, 2018; Babenko et al., 2020; Kiron & Kannan, 2018)

The configuration in Figure 1 leads to stating the three research hypotheses of the study, which are:

- H<sub>1</sub>: Knowledge exploitation has a significant impact on innovation development
- H<sub>2</sub>: Interactive processes have a significant impact on innovation development
- H<sub>3</sub>: Knowledge intensive has a significant impact on innovation development
- H<sub>4</sub>: Business process improvement has a significant impact on innovation development
- H₅: New technology-based firms have a significant impact on innovation development
- H<sub>6</sub>: Go-to-market has a significant impact on innovation development
- H<sub>7</sub>: Stricter regulation has a significant impact on innovation development
- H<sub>8</sub>: Stimulating has a significant impact on innovation development

In this study, the CFA design utilized a survey as a data collection method through structured

questionnaires (Creswell & Creswell, 2018) distributed via email to a sample of small business owners in Indonesia. Respondents were asked a series of questions or statements to gather data. The target population consisted of small business owners meeting specific criteria: a net worth of 50 to 500 million rupiah and annual sales of 300 million to 2.5 billion rupiah, as required by Indonesian government regulations. The random sampling method did not limit any business sector, ensuring equal representation. The study's sample size was 400 of 798.679 small business owners (UKM, 2019). Which falls within the recommended range of 30 to 500 for an acceptable sample size (Roscoe, 1975).

As a quantitative study, statistical analysis was employed to analyze the data. It tested hypotheses by revealing the behavior of research variables (Creswell & Creswell, 2018). Verifiable data analysis was utilized, with a focus on achieving three main objectives: 1) estimating analysis with multiple factors; 2) not assuming a specific distribution, which allows it to be used for Likert scales with large sample counts of more than 100; and 3) to confirming or predicting an applied, middle, or grand theory. The Factor Matrix within SPSS was used with the CFA method to perform data analysis.

study employed the This interval measurement scale, which enables researchers to perform arithmetic calculations on the collected data (Creswell & Creswell, 2018). This measurement scale does not have an actual zero value. This study used the Likert scale as a common measure of attitude in business research. Multiple items that measured the same construct were combined and rephrased appropriately. Respondents were then asked to rate each of the ten items using a 5-point Likert scale, ranging from 1 (not describing the owner adequately) to 5 (describing the owner almost perfectly).

### DISCUSSION

The KMO and Bartlett's test outputs help determine whether a variable is suitable for further analysis using factor analysis techniques. The KMO test measures the appropriateness of the correlations among the variables in the dataset for factor analysis, while the MSA value indicates sampling adequacy. Based on Table 3, the KMO-MSA value is 0.695, more significant than the acceptable value of 0.50 (0.095 > 0.50). This result suggests that the correlations among the variables are sufficient for factor analysis. Additionally, Bartlett's test of Sphericity (Sig) value is 0.000, which is less than the significance level of 0.50(0.000 < 0.05). This result means that factor analysis can be applied to the studied variable because the correlation matrix is not an identity matrix. In brief, the KMO and Bartlett's test outputs indicate that factor analysis techniques can be used to analyze the variable further.

### **Table 3:** KMO and Bartlett's Test Outputs

| Kaiser-Meyer-Olkin Measure of Sampling Adequacy. |                            |      |  |
|--------------------------------------------------|----------------------------|------|--|
| Bartlett's Test of Sphericity                    | ericity Approx. Chi-Square |      |  |
|                                                  | df                         |      |  |
|                                                  | Sig.                       | .000 |  |

Source: Author's work

The Anti-image Matrix is a helpful tool for identifying and determining which indicators are suitable for use in confirmatory factor analysis (CFA). In order to confirm the factor analysis of innovation development, specific requirements must be met, including knowledge exploitation,

knowledge-intensive, interactive process, business process improvement, and the use of new technology-based firms with an MSA value greater than 0.50 (MSA value > 0.50), as shown in Table 4.

| Table 4: | Anti-image | Correlation |
|----------|------------|-------------|
|----------|------------|-------------|

|      | KE                        | IP                 | KI     | BPI                       | NTBF                      | GTM    | SR                        | ST     |
|------|---------------------------|--------------------|--------|---------------------------|---------------------------|--------|---------------------------|--------|
| KE   | <b>0.742</b> <sup>a</sup> |                    |        |                           |                           |        |                           |        |
| IP   |                           | 0.708 <sup>a</sup> |        |                           |                           |        |                           |        |
| KI   |                           |                    | 0.692ª |                           |                           |        |                           |        |
| BPI  |                           |                    |        | <b>0.778</b> <sup>a</sup> |                           |        |                           |        |
| NTBF |                           |                    |        |                           | <b>0.688</b> <sup>a</sup> |        |                           |        |
| GTM  |                           |                    |        |                           |                           | 0.573ª |                           |        |
| SR   |                           |                    |        |                           |                           |        | <b>0.464</b> <sup>a</sup> |        |
| ST   |                           |                    |        |                           |                           |        |                           | 0.521ª |

Source: Author's work

Communalities indicate how well an indicator can account for variation in the innovation development variable under study. Only specific indicators, such as knowledge exploitation, new technology-based firms, and go-to-market with

extraction value greater than 0.50, can explain innovation development. Thus, only some proposed indicators effectively explain this variable (see Table 5).

### **Table 5:** Communalities<sup>a</sup>

|                                     | Initial | Extraction |
|-------------------------------------|---------|------------|
| Knowledge Exploitation              | .336    | .749       |
| Interactive Process                 | .586    | .507       |
| Knowledge Intensive                 | .383    | .464       |
| <b>Business Process Improvement</b> | .582    | .554       |
| New Technology-Based Firms          | .727    | .999       |
| Go-to-market                        | .377    | .999       |
| Stricter Regulation                 | .330    | .204       |
| Stimulating                         | .274    | .215       |

Extraction Method: Maximum Likelihood.

a. One or more communality estimates greater than 1 were encountered during iterations. The resulting solution should be interpreted with caution.

Source: Author's work

The "total variance explained" measures the value of each analyzed indicator in explaining innovation development as a variable. The analysis revealed eight initial eigenvalues, with three extraction sums of squared loadings representing the number of variations or indicators that can be formed. An eigenvalue value greater than 1 (eigenvalue value > 1) is a condition for an indicator. The first three indicators are knowledge exploitation, interactive process, and knowledge-intensive,

explaining 32.799% (eigenvalue = 2.725), 18.448% (eigenvalue = 1.577), and 14.821% (eigenvalue = 1.287) of innovation development variations, respectively. proposed Other indicators. such business process as improvement, new technology-based firms, goto-market, stricter regulation, and stimulating indicators, did not meet the eigenvalue condition and, therefore, cannot be used to measure variations in innovation development (see Table 6).

|        |                     |          | Extraction Sums of Squared |       | Rotation Sums of Squared |            |       |          |            |  |
|--------|---------------------|----------|----------------------------|-------|--------------------------|------------|-------|----------|------------|--|
|        | Initial Eigenvalues |          |                            |       | Loadings                 |            |       | Loadings |            |  |
|        |                     | % of     | Cumulative                 |       | % of                     | Cumulative |       | % of     | Cumulative |  |
| Factor | Total               | Variance | %                          | Total | Variance                 | %          | Total | Variance | %          |  |
| 1      | 2.725               | 32.799   | 32.799                     | 2.118 | 25.216                   | 25.216     | 1.013 | 23.893   | 23.893     |  |
| 2      | 1.577               | 18.448   | 51.137                     | 1.244 | 14.291                   | 39.397     | 1.277 | 14.600   | 38.483     |  |
| 3      | 1.287               | 14.821   | 65.848                     | 1.192 | 13.640                   | 52.927     | 1.265 | 14.554   | 52.927     |  |
| 4      | .971                | 10.873   | 76.610                     |       |                          |            |       |          |            |  |
| 5      | .852                | 9.385    | 85.886                     |       |                          |            |       |          |            |  |
| 6      | .598                | 6.107    | 91.983                     |       |                          |            |       |          |            |  |
| 7      | .527                | 5.328    | 97.101                     |       |                          |            |       |          |            |  |
| 8      | .343                | 2.019    | 100.110                    |       |                          |            |       |          |            |  |

### Table 6: Total Variance Explained

Extraction Method: Maximum Likelihood. Source: Author's work

In Figure 2, only the indicators of knowledge exploitation, interactive process, and knowledge-intensive can explain the variations in innovation development, indicating their importance in measuring innovation. On the other hand, the total value of business process improvement, new technology-based firms, goto-market, stricter regulation, and stimulating indicators need to be more suitable for measuring innovation development variations and providing meaningful insights.



**Figure 2:** Scree Plot, Eigenvalue, and Factor Number Source: Author's work

Table 7 presents the component matrix, which indicates the correlation or relationship between the indicators within the innovation development variable. It shows that the knowledge exploitation indicator correlates highest with knowledge-intensive at 0.747. The interactive process indicator has the highest correlation value with knowledge exploitation at 0.576, and knowledge-intensive has the highest correlation value at 0.549.

 Table 7: Factor Matrix<sup>a</sup>

|                              | Factor |      |      |  |
|------------------------------|--------|------|------|--|
|                              | 1      | 2    | 3    |  |
| Knowledge Exploitation       | .379   | 103  | .858 |  |
| Interactive Process          | .687   | .359 | .432 |  |
| Knowledge Intensive          | .212   | .314 | .650 |  |
| Business Process Improvement | .646   | .482 | .240 |  |
| New Technology-Based Firms   | .873   | .758 | 112  |  |
| Go-to-market                 | .860   | 761  | 112  |  |
| Stricter Regulation          | .465   | .212 | 352  |  |
| Stimulating                  | .275   | 296  | .318 |  |

Extraction Method: Maximum Likelihood.

a. 3 factors extracted. 8 iterations are required. Source: Author's work

The rotated factor matrix in Table 8 helps to determine the correlation values or relationships between indicators within the innovation development variables. The knowledge exploitation indicator shows the highest correlation value, with knowledge-intensive at 0.840. The interactive process indicator also correlates highest with knowledge exploitation at 0.678. Similarly, knowledge-intensive still displays the highest correlation value with knowledge exploitation at 0.686.

This study rejects H4, H5, H6, H7, and H8 as business process improvement, new technologybased firms, go-to-market, stricter regulation, and stimulating are not indicators to measure variations in innovation development in small business enterprises in Indonesia. However, the results of hypothesis testing show that H1, H2, and H3 are accepted, which means that knowledge exploitation, interactive process, and knowledgeintensive have a significant impact on innovation development. In order to describe the problem as comprehensively as possible in the research study, the research team decided to conduct a questionnaire survey among 400 small business owners.

|                                     | Factor |      |      |  |  |
|-------------------------------------|--------|------|------|--|--|
|                                     | 1      | 2    | 3    |  |  |
| Knowledge Exploitation              | .181   | .306 | .840 |  |  |
| Interactive Process                 | .678   | .297 | .485 |  |  |
| Knowledge Intensive                 | .252   | 165  | .686 |  |  |
| <b>Business Process Improvement</b> | .741   | .162 | .319 |  |  |
| New Technology-Based Firms          | .992   | 148  | .227 |  |  |
| Go-to-market                        | .312   | .978 | 165  |  |  |
| Stricter Regulation                 | .478   | .231 | 322  |  |  |
| Stimulating                         | 118    | .373 | .297 |  |  |

Extraction Method: Maximum Likelihood.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 5 iterations.

Source: Author's work

From the result of the questionnaire, it can be summarized that 58.8% of the respondents were already in business at the time of their studies, and their business falls within the SME sector. The most common businesses are catering services, retail sales of garments, and ecommerce. 78% of small business owners believe that innovation is crucial to their business development. According to the respondents, the most critical factors influencing innovation processes in SMEs are leadership, human resource development, and knowledge management. 78% of small business owners, innovation, new ideas, and technology are essential for developing their companies. Leadership, human resource development, and knowledge management influence SMEs' innovation processes.

### CONCLUSION AND RECOMMENDATION

Developing innovation in small businesses. particularly regarding knowledge exploitation, interactive process, and knowledge-intensive, is challenging and may require education and mentoring programs for small business owners. It has a strong potential, and the young generation is also interested in entrepreneurship, as revealed in the questionnaire survey of small business owners. However, the current focus on the progress of

small businesses is mainly based on capital indicators. The study suggests that stakeholders should shift their attention towards supporting the mindset progress of small business owners as it is crucial for the country's economy. At the same time, it will be good to promote entrepreneurial skills among small business owners who see implementing innovation processes in SMEs as very important. It is important to note that the results of this study may vary in different contexts, such as business scales. places, and years. The authors recommend further research on the five indicators (business process improvement, new technology-based firms, go-to-market, stricter regulation, and stimulating) that were not proven to be significant in this study.

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### **ABOUT THE AUTHORS**

Intan Permana, email: intan@uniga.ac.id

- Intan Permana is a Lecturer in the Entrepreneurship Program at Universitas Garut in Indonesia. Her research interest includes investigating how Business Management related subjects' innovation development.
- Chochole Tomáš loves projects and interdisciplinary teamwork. His interests brought him to interdisciplinary cooperation in several international projects. He is an independent journalist, lecturer, researcher, and head of interdisciplinary cooperation at Ladislav Sutnar Faculty of Design and Art, University of West Bohemia in Pilsen, Czech Republic. He helps to connect the world of business and creativity. In his research and lecture activities, he focuses on exploring innovative ways of cooperation, problemsolving, and creativity, using his journalistic experience.
- **Nizar Alam Hamdani** is a Lecturer of Management Program at Universitas Garut in Indonesia. His research interest includes investigating how Strategy Management related to subjects' innovation development. His expertise in this area makes him wellsuited to contribute to this study on innovation development in small business enterprises.
- Retno Purwani Sari is a Doctor of Linguistics with expertise in analyzing language use and communication patterns. With a research focus on new media, she deeply understands how language can contribute to economic activities, particularly in Small and Medium-Enterprise (SMEs). Her research interests investigating how include messages, intentions, and attitudes are expressed to increase the value of SMEs, and her expertise in this area makes her well-suited to contribute to this study on innovation development in small business enterprises.