MARKETING INTELLIGENCE: INNOVATION ABILITY TO ANTICIPATE GLOBAL COMPETITION

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Abstract

Making strategic decisions in a dynamic business environment has become a challenge for business people, especially in small and medium-sized enterprises (SMEs). Contextual knowledge gained in understanding the external environment is a factor that must be owned by every business person so that they gain a competitive advantage in increasing competition. This study aims to test the Entrepreneurial Performance measurement model. The research was conducted on SMEs in West Java, in the city of Bandung. The sample selection was determined using purposive sampling method and obtained 170 respondents as a sample. The analysis was carried out using the Structural Equation Model (SEM). The results of the study indicate that the fit model after modification and produces an alternative model in the form of a correlation between Marketing Intelligence and Entrepreneurial Performance. Marketing Intelligence, Product Innovation and Competitive Advantage have a direct influence on Entrepreneurial Performance significantly. Product Innovation partially has no significant effect on Competitive Advantage. This research is also expected to contribute to SMEs in the city of Bandung to always have good knowledge before making a decision. This knowledge includes an understanding of trends, media, competitors and suppliers. The limitation in this study is also in its scope, which is only limited to a few SMEs in the city of Bandung. It is hoped that future researchers will add samples and use other variables that can improve entrepreneurial performance.

Keywords: *Marketing Intelligence; Product Innovation; Competitive Advantage; Entrepreneurial Performance*

Introduction

Making strategic decisions in a dynamic business environment is a challenge faced by many organizations[1].Although most organizations have provided good performance in implementing management, they are still not considered effective[2].This is because the level of global competition demands that every company or organization has a competitive advantage[2].Management practices at the organizational level can determine success for the organization itself. But this cannot be realized if managers do not have an in-depth understanding of changing market trends [3]. Therefore, an important point in developing effective strategic planning is scanning the environment to find opportunities and threats [4]. Currently, companies are required to continuously update information in order to be able to compete. The importance of understanding the market is an important part of building a competitive advantage so as to increase revenue growth [5]. Analysis of the market is considered a special form of research that can form the basis for decision making. Due to the volatile business environment and the increasingly strong influence of globalization, new challenges arise for every business organization [6-9].To enter new markets, companies must maximize their market intelligence capabilities to differentiate themselves from others through providing innovative products in the market. However, despite the maintenance and encouragement of various technology-based knowledge, many companies do not effectively utilize their technology and knowledge in gaining competitive advantage [10].

Almost all owners and managers in organizations want their business to perform well. Revolutionary advances in technology and rapid changes have created serious challenges for organizations [11]. To maintain sustainable growth, organizations must innovate both in terms of products, processes and marketing strategies, but this cannot be realized if the organization does not have an understanding of the market that is currently always evolving[12].Since the advent of the Internet, every idea of a business model has changed, where all activities that were originally carried out traditionally have now entered the digital era [13]. Marketing intelligence has shaped the logic in which companies must seize opportunities in the external environment [6]. The concept of marketing intelligence (MI) is a strategy that can be carried out by all parties to obtain information by collecting market data and analysis in accordance with current market conditions[14, 15] .Previous research has stated that MI can contribute to organizations in marketing decision making [16-18]. In West Java, the development of SME business is increasing day by day, it can be seen in table 1, that this increase is growing in various sectors

Table 1

Types of SMEs in Bandung

No	Type of SME	Year		Percentage
		2020	2021	
1	Convection and Advertising	56	81	25%
2	Food industry	67	104	37%
3	Printing	53	64	11%
4	screen printing	39	51	12%
5	Home Industry	71	113	42%

Source: Data processed in 2021, accessed from BPS Bandung City

Based on table 1, it shows that there is an increase in the growth of SMEs from various industries in the city of Bandung. However, this growth is not accompanied by its ability to expand by expanding its market. This means that the growth of SMEs in table 1 can only compete in the national realm or in the regional city of Bandung. Therefore, this research is proposed to develop entrepreneurial performance and to examine the factors that can influence it. Previous research stated that to obtain

good performance, several variables were applied as factors that could drive the performance itself. Thus, the formulation of the problem in this study is whether the independent variables, namely, marketing intelligence, product innovation, and competitive advantage affect entrepreneurial performance? Does the designed model fit the field data? Specifically, in the empirical model, the variables of marketing intelligence, product innovation and have a role in entrepreneurial performance through competitive advantage?

THEORY STUDY AND HYPOTHESES DEVELOPMENT

Marketing Intelligence and Product Innovation

Intelligence in the context of marketing is an important factor for organizations in responding to competitive changes, especially in the era of globalization [12, 17, 19] states that organizational success can be obtained if it is consistent in providing its needs so that it is better than its competitors. This is why marketing intelligence plays an important role in facing increasing competition. The need for related marketing information in an organization's marketing environment is an issue that has been widely discussed by researchers [1, 8, 19]. To analyze and absorb changes in the external environment, organizations must be able to collect data and information with the aim of being the basis for decision making [13]. According to [20] information can direct organizations to create innovative products before the competition begins. [9, 21] defines marketing intelligence as the ability to find sources of information, or the process of gathering information [12] about changes in the business environment, including product trends or competitors as a basis for making marketing decisions. This process will help the company or organization to have a better understanding of what is happening in the market, and what opportunities can be obtained to determine current and future needs and preferences. describes marketing intelligence as a structure of people interaction, analyzing and distributing relevant, timely and accurate information for use by marketing decision makers to improve their marketing planning. According to [10] is seen as a set of procedures and methods designed to generate, analyze, disseminate, and store anticipated informed marketing decisions on a regular basis.[22-24] explains that given the growing competition, managers face an urgent need to have updated intelligence for effective strategic decision making. [25, 26] also argues that intelligence analysis with planned monitoring, scanning and the use of multiple methods to collect and analyze information, is necessary not only to function but also to prevent challenges, risks and threats.

[27] states that in order to adapt effectively to the environment, managers must collect more information in an effort to improve business performance. In addition, the information obtained must focus on what is actually needed (Hussein, 2020). In the concept of marketing intelligence, analytical skills will determine the quality of the information obtained where these skills come from cognition. In marketing research, the role of marketing intelligence is considered very important [11]. The information received will be material for managers in dealing with problems in the field. A more recent study by [20, 28] highlights that in today's wave of changing business world, companies are faced with unpredictable environmental changes, which are so fast that constant readiness is essential. Against this background, marketing intelligence serves as a key input, because the quality of marketing information affects the effectiveness of decision-making in all industries and each industry must design the means to survive and compete, thereby producing innovative products [29] measures the dimensions of marketing intelligence with four factors, namely customer information, products, competitors and analytical skills

Product Innovation and Entrepreneurial Performance

According to [30] the ability of an organization to understand the external environment can have a relevant effect on growth and innovation. Among the many definitions put forward that innovation is described as a process, namely the activity of creating new products or services, new technologies, or improving existing products or services using existing technological processes and organizations [31]. Innovation can be classified according to [21] as: product innovation (providing new or better goods or services); process innovation (providing new ways to organize and incorporate inputs in the production process); and organizational innovation (providing new or improved company resources). However, this study focuses on product innovation, where[32, 33] defines that product innovation is the introduction of new goods or services in order to meet market or user needs. In addition, product innovation can help protect organizations from market threats and competitors [3]. [34, 35] concludes that 80% of innovations carried out by organizations have a positive and significant impact on business performance. Currently, companies are faced with strong competition where there are many products/services that are the same or similar in the market. As a result, companies need to continuously provide new products/services or improve existing ones to gain an edge. [7] states that innovation is described as a future building block that can be used to gain competitive advantage, especially in the global market [36].

Companies that do not innovate will not be able to face competition or even fail[27, 37]. [38] mentions that innovation indicators are divided into three, namely product innovation, process innovation, and organizational innovation. in his research on manufacturing companies in Turkey, found that companies that design and implement a clear innovation strategy have improved their financial performance, customer performance, internal business process performance, as well as gaining a competitive advantage over the competition. Likewise with [33] where process innovation shows a positive relationship between innovation and performance, arguing that when a company loses its market, innovation is considered a solution to enter new markets that can gain profitability and gain a competitive position. Two studies conducted in different countries by[21, 39-41] showed a positive relationship between product innovation and competitive advantage and organizational performance. Mahmud, (2017) has discovered how organizations can map innovation. This framework is called “The 4Ps of innovation space”. Within that framework each innovation can be mapped somewhere in the four-dimensional space. These dimensions are process, position, product and paradigm[4, 6, 27, 29, 37, 38, 42].

Competitive Advantage and Entrepreneurial Performance

The small and medium enterprise (SME) sector has proven its role in economic development in every country. However, when the presence of technology brings change, this sector faces quite aggressive challenges so it must reformulate its strategy in order to have an advantage. [43] describes competitive advantage as something that an organization can have that its competitors do not have. Organizations can gain competitiveness by offering customers better and higher value than competitors. [34, 35] conceptualizes competitive advantage as a unique product or service. Competitive advantage is the company's ability to outperform competitors in the same industry that can attract customers, build prestige for the organization or its products, and increase the perceived value and customer satisfaction [44]. This study of competitive advantage includes two dimensions: taking advantage of market opportunities and neutralizing threats[32] (Jain, 2017). In exploiting market opportunities, organizations can take three different approaches (eg, product development, mergers, and acquisitions). According to [13, 17, 45]

competitive advantage is defined as the strategic benefits of a company or organization that allow it to perform better than competitors.

Initially, Porter has suggested four main competitive strategies: differentiation strategy, cost leadership strategy, differentiation focus and cost focus strategy [46]. The first two strategies namely, differentiation and cost leadership are strategic weapons and are considered as competitive advantages. Organizations can gain competitive advantage can improve business performance. [47] states that business performance can be measured by two factors, namely profit growth and the ability to adapt to the environment (developing trends). According to [28, 48] organizations can pursue superior performance using two strategies, namely a good understanding of the market and product innovation. Understanding this market can result in cost leadership enabling companies to gain a price-based advantage by reducing various costs associated with materials, product development, marketing, operational, supplier, wage and management costs which in turn provide higher performance benefits.

Research Model

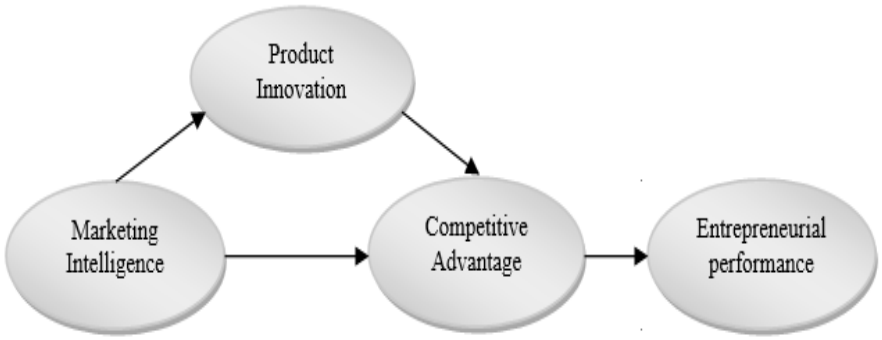

Figure 1. Conceptual framework

Table 2

Hypothesis

Hypotesis	Description
H1	Marketing intelligence has a positive effect on Product Innovation
H2	Marketing intelligence has a positive effect on competitive advantage
H3	Product innovation affects competitive advantage
H4	Competitive advantage affects entrepreneurial performance

METHOD

Instrument Development

Questionnaire, designed, to measure, marketing intelligence, product innovation, competitive advantage and entrepreneurial performance. Questionnaires were distributed to SMEs in West Java, especially in Bandung City using the following criteria:

1. SMEs that run their business activities in the city of Bandung
2. SMEs that have salespeople in carrying out their activities
3. SMEs have been running for at least 10 years

Table 2 and Table 3 show the variables, operations, descriptions, and measurements of each variable

Table 3

Operational Variables

Variable	Description	Source
Marketing Intelligence	Ability to find sources of information, or the process of gathering information about changes in the business environment	(Rayón, 2017; Tahmasebi, 2017; Falahat, 2020)
Product Innovation	A process, namely the activity of creating a new product or service, new technology, or improving an existing product or service using existing technological processes and organizations.	(Arnal, 2018; Nanda, 2018; Nwachukwu, 2018)
Competitive Advantage	Something an organization can have that its competitors don't have.	(Lorenzo, 2018; Syapsan, 2019)
Entrepreneurial Performance	**The results of the organizational goals achieved through the effectiveness of the implemented strategies**	(Anwar, 2018; Lorenzo, 2018; Johan Ahmad, , 2019)

Table 4

Variable Measurement

Variable	Item	Indicator	Reference
Marketing Intelligence	MI.1	Organizational ability to understand customers	
	MI.2	Organizational ability to understand product trends	**(Falahat, 2020)**
	MI.3	The organization's ability to understand competitors' movements	
	MI.4	Organizational ability to analyze information	
Product Innovation	PI.1	Availability of product variants	
	PI.2	Improvements to existing products	**(Marshall, 2019)**
	PI.3	New product manufacturing process	
	PI.4	Additional attributes for existing products	
Competitive Advantage	CA.1	Ability to take advantage of opportunities	
	CA.2	Deliver value for customers	**(Syapsan, 2019)**
	CA.3	Neutralize threats	
	CA.4	Ability to adapt to trends	
Entrepreneurial Performance	EP.1	Increased sales volume	
	EP.2	Organizational innovation	**(Anwar, 2018)**
	EP.3	**Investor increase**	

Samples and Data Collection

To measure entrepreneurial performance, this research was conducted in West Java, especially in the city of Bandung, Indonesia by selecting SMEs as the population (). The sampling technique was carried out using purposive sampling technique, with the criteria that the organization had been operating for at least 10 years as a sampling requirement. . The data is done by giving a direct questionnaire. Distributed to 200 business owner respondents and 170 data after Mahalanobis was conducted. Data were analyzed using structural equation modeling with the help of AMOS version 23 . program.

DATA ANALYSIS METHOD

Data analysis in this study used structural equation model analysis (SEM) with the help of the AMOS statistical program version 23. The sample size provides the basis for estimating the sampling error. With the estimation model using Maximum Likelihood, the minimum sample required is 100. The Maximum Likelihood method will increase its sensitivity if the sample is above 400, so it will produce a significant difference so that the Goodness-of-fit measure becomes bad. Therefore, it is recommended that the number of samples range from 150 to 400. This research was conducted using a sample of 170 data from SMEs in West Java, Bandung City.

Identification and Definition of Operational Variables:

Exogenous Variables:

a. Marketing Intelligence is information related to the organization, the data collected and then processed accurately so that it can be used to determine market opportunities, market strategies and market development.

Endogenous Variables:

a. Competitive Advantage

The company's ability to outperform competitors in the same industry that can attract customers, build prestige for the organization or its products, and increase perceived value and customer satisfaction [38, 49, 50]

b. Product Innovation

The activity of creating new products or services, new technologies, or improving existing products or services using existing technological processes and organizations [5, 11, 47]

c. Entrepreneurial Performance

Entrepreneurial performance to promote the main concepts of an organization's business, develop new products, identify market opportunities, create a modern environment and also be ready to react to extraordinary market patterns.

Respondent Profile

Respondent data obtained from this study were 58 percent more men than 42 percent of women. For the age group, the highest number is in the age range of 31-45 years with a percentage of 45 percent. Then for the majority educational background group from S1 Education. While in the income group, the data obtained is 31 percent for respondents with an income level of Rp 2,500,000 – 5,000,000.

Table 5

Profile of Respondents

Criteria	Distribution	*N*	Percentage
Gender	Male	98	58
	Female	72	42
Age	18 – 30 Year	62	36
	31 – 45 Year	76	45
	46 – 60 Year	32	19
Education	Senior Hihg School	23	14
	D3	54	32
	S1	61	36
	S2	32	19
Income	< Rp 2.500.000	31	18
	Rp 2.500.000 – 5.000.000	53	31
	Rp 5.100.000 – 7.500.000	49	29
	> Rp 7.500.000	37	22

DATA ANALYSIS
Data Reliability Test

Based on the results of the standardized loading estimate significance test, objective information is obtained that all indicators provide a very significant standardized loading estimate value ($p < 0.001$) with a loading value greater than 0.50. This indicates that all indicators are valid in measuring the latent variable. For reliability testing, Cronbach's Alpha (α) is calculated using the SPSS version 23 program, with test results > 0.70. Construct Reliability (CR) and Average Variance Extracted (AVE) are calculated manually with the following equation:

$$CR = \frac{(\sum_{i=1}^{n} \lambda_i)^2}{(\sum_{i=1}^{n} \lambda_i)^2 + (\sum_{i=1}^{n} e_i)}$$

$$AVE = \frac{\left(\sum_{i=1}^{n} \lambda_i^2\right)}{n}$$

Statistical results for all databases with alpha values and Construct reliability (CR) values must be above 0.7. The value of Average Variance Extracted (AVE) is recommended above 0.5. From the results of this test, the values obtained by Cronbach's Alpha, Construct reliability and Average Variance Extracted meet the critical values, so this data can be said to be reliable.

Table 6

Reliability Test and Standardized Loading Estimate

Laten Variable	Indikator	Standar Loading	Cα	CR	AVE
Marketing Intelligence	Organizational ability to understand customers	0,684	0,847	0,857	0,601
	Organizational ability to understand product trends	0,801			
	The organization's ability to understand competitors' movements	0,784			
	Organizational ability to analyze information	0,825			
Product Innovation	Availability of product variants	0,738	0,811	0,811	0,518
	Improvements to existing products	0,736			
	New product manufacturing process	0,696			
	Additional attributes for existing products	0,709			
Competitive Advantage	Ability to take advantage of opportunities	0,581	0,823	0,832	0,561
	Deliver value for customers	0,879			
	Neutralize threats	0,661			
	Ability to adapt to trends	0,834			
Entrepreneurial Performance	Increased sales volume	0,825	0,840	0,849	0,655
	Organizational innovation	0,889			
	Investor increase	0,702			

Model Fit Test

The results of the model suitability test in this study are complete as shown in Figure 1. The results of the model suitability test using Chi-square, CMIN/DF, GFI, AGFI, RMSEA, TLI and CFI are summarized as in Table 3. Table 3 shows that the planned model fits marginally, because after being tested, for the values of RMSEA, RMR, AGFI, CFI, GFI and TLI the results were good, but the Chi Square p-value was 0.000 < 0.050. So with this, modification of the model is carried out by following the modification indices by linking the error on the MI1 indicator with the error on the MI2 indicator (Marketing Intelligence variable), then connecting the error on the MI3 indicator with the error on the MI4 indicator (Marketing Intelligence variable), and linking the error on the CA3 indicator. with an error on CA1 (Competitive Advantage variable), and linking the Marketing Intelligence variable with Entrepreneurial Performance. The results of the model modification can be seen in Figure 2.

Table 7

Model Fit on Initial Model

Staistik Uji	Critical Value	Test results	Information
Chi Square	-	170,713	-
Degree of Freedom	-	86	-
p-Value	> 0,05	0,000	Tidak Fit
CMIN/DF	< 2,00	1,985	Fit
Root Mean Square Residual (RMR)	> 0,05	0,125	Fit
Root Mean Square Error of Approximation (RMSEA)	< 0,08	0,050	Fit
Goodness of Fit Index (GFI)	≥ 0,90	0,948	Fit
Adjusted Goodness of Fit (AGFI)		0,927	Fit
Comparative Fit Index (CFI)		0,968	Fit
Tucker Lewis Index (TLI)		0,961	Fit

After modification of the measurement model, the results of Chi-square, CMIN/DF, GFI, AGFI, RMSEA, TLI and CFI meet the critical value, along with the p-value 0.057 > 0.05 and CMIN/df obtains better results and meet the critical value. In this alternative model there is a new correlation that occurs between the variables of Marketing Intelligence and Entrepreneurial Performance. With this, the modified model is better than the initial model and the alternative model has a model that fits the population studied as shown in Figure 2, and the results of the improved model fit are shown in Table 4.

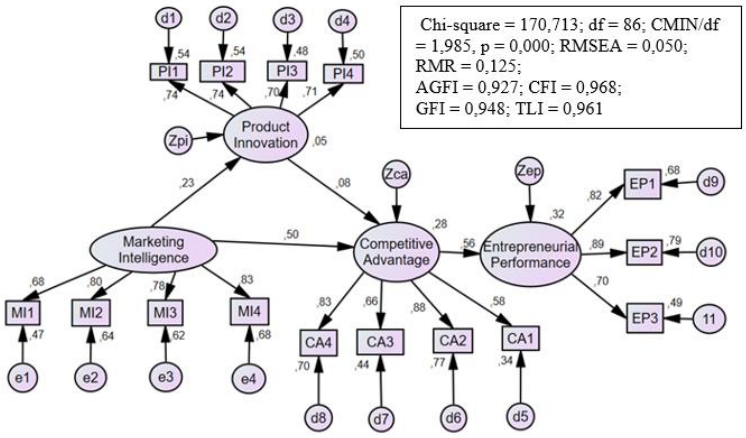

Figure 2. Initial Research Model

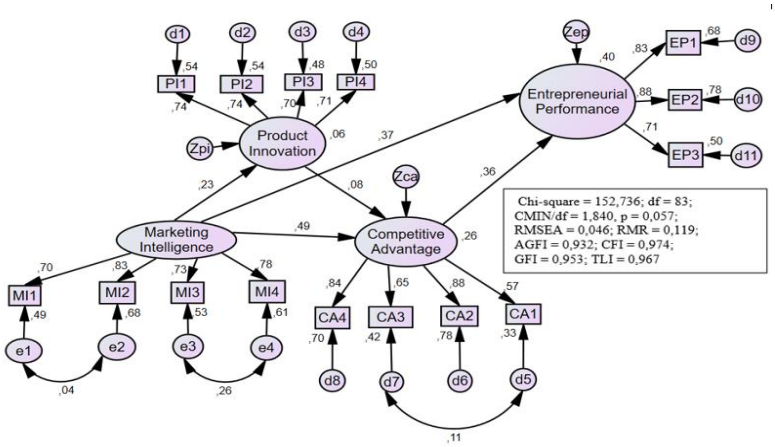

Figure 3. Alternative Model

Table 8

Model Fit in Alternative Models After Repair

Staistik Uji	Nilai Kritis	Hasil Uji	Keterangan
Chi Square	-	152,736	-
Degree of Freedom	-	83	-
p-Value	> 0,05	0,057	Fit
CMIN/DF	< 2,00	1,840	Fit
Root Mean Square Residual (RMR)	> 0,05	0,119	Fit
Root Mean Square Error of Approximation (RMSEA)	< 0,08	0,046	Fit
Goodness of Fit Index (GFI)	≥ 0,90	0,953	Fit
Adjusted Goodness of Fit (AGFI)		0,932	Fit
Comparative Fit Index (CFI)		0,974	Fit
Tucker Lewis Index (TLI)		0,967	Fit

Convergent Validity Test

Convergent validity test is obtained from the model measurement data for each variable, this test is carried out to determine the validity of each estimated indicator, by measuring the dimensions of the concepts tested in the study. If each indicator has a critical ratio (CR) value greater than twice standard error (SE), indicating that the indicator has measured what it is supposed to measure in the model presented [3, 22-24] (Ferdinand, 2002). From the test results, the regression weight value shows that the critical ratio (C.R.) is greater than twice the standard error (S.E.), which means that all indicators in the study are valid for each latent variable. The regression weight values for each construct are as shown in Table 5.

Model Causality Test

Through the AMOS statistical program, it can be analyzed and calculated the results of the regression weights between latent variables which are often referred to as estimated loading factors or lambda values. In addition, the degree of freedom (df), the value of C.R or t-count can also be known.

Based on the significance of t-count with probability value (p) = 0.05. The results of the causality test regression weights are as shown in Table 6. Further explanation

of the regression weight evaluation analysis can be described and explained as follows:

1. The Marketing Intelligence variable has a significant effect on the Product Innovation variable with a t-count value smaller than the probability value <0.05.
2. The Marketing Intelligence variable has a significant effect on the Competitive Advantage variable with a t-count value smaller than the probability value <0.05.
3. The Product Innovation variable does not significantly affect the Competitive Advantage variable with a t-count value greater than the probability value 0.154 > 0.05.
4. The Competitive Advantage variable has a significant effect on the Entrepreneurial Performance variable with a t-count value smaller than the probability value <0.05.
5. The Marketing Intelligence variable has a significant effect on the Entrepreneurial Performance variable with the t-count value smaller than the probability value <0.05.

Table 9

Evaluation of Causality Test Regression Weights

			Estimate	S.E.	C.R.	P
Product_Innovation	<--	Marketing_Intell	,208	,055	3,765	***
Competitive_Adv	<--	Marketing_Intell	,677	,094	7,235	***
Competitive_Adv	<--	Product_Innovation	,114	,080	1,425	,154
Entrepreneurial_Perf	<--	Competitive_Adv	,285	,035	8,115	***
Entrepreneurial Perf	<--	Marketing Intell	,244	,041	5,880	***

Direct Effects, Indirect Effects and Variable Total Effects

The magnitude of the influence of each latent variable directly (standardized direct effect) and indirectly (standardized indirect effect) as well as the total effect (standardized total effect) are summarized in Table 10. The magnitude of the influence of each latent variable directly (standardized direct effect) or indirect (standardized indirect effect) and total effect (standardized total effect) are explained as follows:

1. The Marketing Intelligence variable has a direct effect or influence on Product Innovation of 0.231 and there is no indirect effect.
2. Marketing Intelligence variable has a direct effect or influence on the Competitive Advantage variable of 0.519 and has an indirect effect of 0.018, so the total effect is 0.537.
3. Marketing Intelligence variable has a direct influence on Entrepreneurial Performance of 0.372 and does not have an indirect effect.
4. Product Innovation variable has a direct effect on Competitive Advantage of 0.078 and has no indirect effect.
5. Competitive Advantage variable has a direct effect on Entrepreneurial Performance of 0.569 and does not have an indirect effect.

Table 10

Standardized Direct, Indirect and Total Effects

Variable	Efek Langsung	Efek Tidak Langsung	Efek Total
Marketing Intell → Product Innovation	0,231	0,000	0,231
Marketing Intell → Competitive Advantage	0,519	0,018	0,537
Marketing Intell → Entrepreneurial Perf	0,372	0,000	0,372
Product Innovation → Competitive Advantage	0,078	0,000	0,078
Competitive Advantage → Entrepreneurial Perf	0,569	0,000	0,569

Coefficient of Determination

The magnitude of the simultaneous variable contribution to other variables is explained as follows:

1. Competitive Advantage variable has a role of 56.8.4% on Entrepreneurial Performance.
2. Product Innovation and Marketing Intelligence variables have a role of 71.7% of Competitive Advantage.
3. Marketing Intelligence variable has a role of 62.8% towards Product Innovation.
4. Marketing Intelligence variable has a role of 59.3% to Competitive Advantage.
5. Marketing Intelligence variable has a role of 52.1% on Entrepreneurial Performance.

Table 11

Coefficient of Determination

Influencing Variables	Affected Variables	Effective Donation
Competitive Advantage	Entrepreneurial Performance	56,8%
Product Innovation Marketing Intelligence	Competitive Advantage	71,7%
Marketing Intelligence	Product Innovation	62,8%
Marketing Intelligence	Competitive Advantage	59,3%
Marketing Intelligence	Entrepreneurial Performance	52,1%

Discussion

Effect of Marketing Intelligence on Product Innovation

In this study, it can be seen that there is a significant influence of the Marketing Intelligence variable on Product Innovation. Based on this data, it is very important for SMEs to continue to improve their ability to understand market trends that can affect business performance. This can be done by seeking information about the market and what consumers want so that it can trigger the development of Product Innovation. These results are consistent with the findings of [19] that to apply innovation to products, understanding of the target market must be good and requires structured analysis. Marketing intelligence is a factor that can overcome the complexity of information in the external environment. Thus the first hypothesis can be accepted.

Effect of Marketing Intelligence on Competitive Advantage

In this study, it can be seen that there is a significant influence of the Marketing Intelligence variable to encourage an increase in Competitive Advantage. Based on this data, it is very important for SMEs to continue to improve Marketing Intelligence by seeking information about the market and what consumers want so that SMEs will have a better competitive advantage compared to competitors. This result is also supported by [25] that intelligence analysis with planned monitoring, scanning and the use of multiple methods to collect and analyze information, is needed not only to function but also to prevent challenges, risks and pursue competitive advantage. Therefore, based on this, the second hypothesis is accepted.

Effect of Product Innovation on Competitive Advantage

In this study, data obtained that Product Innovation does not significantly affect Competitive Advantage. This can happen because the variable that can increase the Competitive Advantage is not only Product Innovation but there are other variables that influence it, such as Service Quality. Based on the distribution of questionnaires conducted, respondents answered that competitive advantage can be obtained through the network that is built and the quality of the services provided. Therefore, the hypothesis which states that product innovation has an influence on competitive advantage is rejected.

The Effect of Competitive Advantage on Entrepreneurial Performance

In the study, data obtained that Competitive Advantage can significantly affect Entrepreneurial Performance. Based on the data obtained, it is known that every SME actor must have an advantage in terms of Competitive Advantage, this factor is very important for SME actors so that consumers are interested in buying products, because SMEs that implement a good Competitive Advantage can certainly have different and quality products compared to other SMEs. competitor products. These results are consistent with research by [30] that competitive advantage is something that an organization can have that does not exist in its competitors so that this can increase entrepreneurial performance for the organization. Therefore, based on the results of data processing and findings in the field, competitive advantage has an influence on entrepreneurial performance so that the fourth hypothesis is accepted.

Effect of Marketing Intelligence on Entrepreneurial Performance

In the study, data obtained that Marketing Intelligence has a significant influence on Entrepreneurial Performance. This relationship is a new finding in the measurement model and can be an alternative model. In the initial model shown in Fig. 1 obtained data that the p-value is smaller than 0.05 (Table 1), so the model is said to be unfit with empirical conditions. Therefore, modifications were made to the initial model, then an alternative model was obtained with the emergence of a relationship between Marketing intelligence and Entrepreneurial Performance in the population studied. This finding is supported by research by [39] that marketing intelligence has a direct influence on entrepreneurial performance

Conclusion

After the initial model was improved, it was found that the Goodness of Fit Test as a whole had met the feasibility of the model (fit), and gave rise to a new relationship between the Marketing Intelligence variable and Entrepreneurial Performance, which means that the model became an alternative model for the population studied. Therefore, the model is in accordance with empirical conditions in

the SME world, especially in the city of Bandung. In the research model, the results show that the Marketing Intelligence variable has a direct effect on Product Innovation. The Marketing Intelligence variable has a direct and indirect influence through Product Innovation on Competitive Advantage. There is a direct influence of the Marketing Intelligence variable on Entrepreneurial Performance. The Competitive Advantage variable on the Entrepreneurial Performance variable has a significant direct effect. However, there is no significant effect of the Product Innovation variable on Competitive Advantage so that a direct effect is obtained with a small value of 0.078. Based on the research results, it is practically recommended for local governments to develop SME actors so that they have good Marketing Intelligence, Product Innovation, and Competitive Advantage that can increase competitiveness and increase entrepreneurial spirit through entrepreneurship training. In addition, the results of this study can also contribute to the world of education, especially entrepreneurship education to pay attention to entrepreneurial attitudes and the desire to seek various kinds of market information as internal or personal factors. Theoretically, this research model can be developed further, such as considering personality and demographic factors that determine the unique behavior of each individual.

References

1. Popovič, A., B. Puklavec, and T. Oliveira, *Justifying business intelligence systems adoption in SMEs: Impact of systems use on firm performance.* Industrial Management & Data Systems, 2019 DOI: https://doi.org/10.1108/IMDS-02-2018-0085.
2. McAdam, R., U. Bititci, and B. Galbraith, *Technology alignment and business strategy: A performance measurement and dynamic capability perspective.* International Journal of Production Research, 2017. **55**(23): p. 7168-7186 DOI: https://doi.org/10.1080/00207543.2017.1351633.
3. Falahat, M., et al., *SMEs internationalization: The role of product innovation, market intelligence, pricing and marketing communication capabilities as drivers of SMEs' international performance.* Technological Forecasting and Social Change, 2020. **152**: p. 119908 DOI: https://doi.org/10.1016/j.techfore.2020.119908.
4. Noviyanti, I., et al., *Marketing Intelligence Implementation for Supply Chain Mannagemnt of Mix Products That Affect the Purchasing Decision on Citra Karisma, Yogyakarta.* Int. J Sup. Chain. Mgt Vol, 2020. **9**(3): p. 1235.
5. Rodrigues, M.H.P., P.A. Azevedo, and J.L. Reis, *O Business Intelligence, o marketing de e-governo e as Tecnologias de Informação para apoio às tomadas de decisão no Planeamento Fiscal*. Revista Ibérica de Sistemas e Tecnologias de Informação, 2019(E24): p. 198-207.
6. Braasch, J.L.G., *Advances in research on internal and external factors that guide adolescents' reading and learning on the Internet (Avances en la investigación de los factores internos y externos que condicionan la lectura y el aprendizaje de los adolescentes a través Internet).* Journal for the Study of Education and Development, 2020. **43**(1): p. 210-241 DOI: https://doi.org/10.1080/02103702.2019.1690851.
7. Bustinza, O.F. and E. Gomes, *F, Vendrell-Herrero, and T. Baines. 2017.".* Product-Service Innovation and Performance: The Role of Collaborative Partnerships and R&D Intensity." R & D Management. **49**(1): p. 33-45 DOI: https://doi.org/10.1111/radm.12269.
8. Paschen, J., J. Kietzmann, and T.C. Kietzmann, *Artificial intelligence (AI) and its implications for market knowledge in B2B marketing.* Journal of Business & Industrial Marketing, 2019 DOI: https://doi.org/10.1108/JBIM-10-2018-0295.
9. Wirth, N., *Hello marketing, what can artificial intelligence help you with?* International Journal of Market Research, 2018. **60**(5): p. 435-438 DOI: https://doi.org/10.1177/1470785318776841.
10. Al-Hashem, A.O., *Mediation Impact of Marketing Intelligence in the Relationship between Technology Based Knowledge Sharing and Product Innovation.* TEM Journal, 2020. **9**(2): p. 688-693 DOI: https://doi.org/10.18421/TEM92-35.
11. Ramos, C.M.Q., et al. *Marketing intelligence and automation–An approach associated with tourism in order to obtain economic benefits for a region*. Springer DOI: https://doi.org/10.1007/978-3-319-58706-6_32.
12. Hussein, E.A., *Marketing Intelligence System and its Impact in Determining Strategies of Competitive Positions.* Utopía y Praxis Latinoamericana, 2020. **25**(1): p. 530-544.

13. Kbelah, S.I., E.G. Amusawi, and A.H. Almagtome, *Using Resource Consumption Accounting for Improving the Competitive Advantage in Textile Industry*. Journal of Engineering and Applied Sciences, 2019. **14**(2): p. 575-382.
14. Nanda, M., C. Pattnaik, and Q.S. Lu, *Innovation in social media strategy for movie success: a study of the Bollywood movie industry*. Management Decision, 2018 DOI: https://doi.org/10.1108/MD-04-2017-0429.
15. Nghia, T.L.H., *External stakeholders' roles and factors influencing their participation in developing generic skills for students in Vietnamese universities.* Journal of Education and Work, 2018. **31**(1): p. 72-86 DOI: https://doi.org/10.1080/13639080.2017.1386774.
16. Kanwal, S., H.V. Samalia, and G. Singh, *The role of marketing intelligence in brand positioning: Perspective of marketing professionals.* Journal of Cases on Information Technology (JCIT), 2017. **19**(1): p. 24-41 DOI: https://doi.org/10.4018/JCIT.2017010103.
17. Kanwal, S., G. Singh, and H.V. Samalia, *The Role of Organizational Culture and Process-Structure in Marketing Intelligence: Perspective of IT Professionals.* Journal of Cases on Information Technology (JCIT), 2017. **19**(1): p. 60-78 DOI: https://doi.org/10.4018/JCIT.2017010106.
18. Luo, Q., et al., *Effects of Integrated Health Education Combined with Life Intervention on Patients with Coronary Atherosclerotic Heart Disease Complicated with Hyperlipidemia.* American Journal of Health Behavior, 2021. **45**(5): p. 843-848 DOI: https://doi.org/10.5993/AJHB.44.6.7.
19. Hendar, H., et al., *Market intelligence on business performance: The mediating role of specialized marketing capabilities.* Journal of Intelligence Studies in Business, 2020. **1**(1) DOI: https://doi.org/10.37380/jisib.v1i1.562.
20. Serdari, T., *Luxury Marketing Strategies Based on Cultural Intelligence*, in *Rethinking Luxury Fashion*. 2020, Springer. p. 141-166 DOI: https://doi.org/10.1007/978-3-030-45301-5_10.
21. Zhang, H., H. Rao, and J. Feng, *Product innovation based on online review data mining: a case study of Huawei phones.* Electronic Commerce Research, 2018. **18**(1): p. 3-22 DOI: https://doi.org/10.1007/s10660-017-9279-2.
22. Daabes, A.S.A. and F.F. Kharbat, *Customer-based perceptual map as a marketing intelligence source.* International Journal of Economics and Business Research, 2017. **13**(4): p. 360-379 DOI: https://doi.org/10.1504/IJEBR.2017.10004422.
23. Davenport, T., et al., *How artificial intelligence will change the future of marketing.* Journal of the Academy of Marketing Science, 2020. **48**(1): p. 24-42 DOI: https://doi.org/10.1007/s11747-019-00696-0.
24. De Bruyn, A., et al., *Artificial intelligence and marketing: Pitfalls and opportunities.* Journal of Interactive Marketing, 2020. **51**: p. 91-105 DOI: https://doi.org/10.1016/j.intmar.2020.04.007.
25. Eletter, S.F., T. Yasmin, and G.A. El Refae, *Marketing intelligence in the era of Big Data.* TEM Journal, 2019. **8**(3): p. 938.
26. Mantey, D.S., et al., *Positive Affect and Multiple-tobacco Product Use among Youth: A 3-year Longitudinal Study*. American Journal of Health Behavior, 2021. **45**(5): p. 849-855 DOI: https://doi.org/10.5993/AJHB.45.5.5.
27. Cozzarin, B.P., *Impact of organizational innovation on product and process innovation.* Economics of Innovation and New Technology, 2017. **26**(5): p. 405-417 DOI: https://doi.org/10.1080/10438599.2016.1204779.
28. Seidlova, R., J. Požívil, and J. Seidl, *Marketing and business intelligence with help of ant colony algorithm.* Journal of Strategic Marketing, 2019. **27**(5): p. 451-463 DOI: https://doi.org/10.1080/0965254X.2018.1430058.
29. Jarek, K. and G. Mazurek, *MARKETING AND ARTIFICIAL INTELLIGENCE.* Central European Business Review, 2019. **8**(2) DOI: https://doi.org/10.18267/j.cebr.213.
30. Lee, S. and Z.S. Johnson, *The effect of new product design and innovation on South Korean consumer's willingness to buy.* Asia Pacific Journal of Marketing and Logistics, 2017.
31. Schubert, T. and S. Tavassoli, *Product innovation and educational diversity in top and middle management teams.* Academy of Management Journal, 2020. **63**(1): p. 272-294 DOI: https://doi.org/10.5465/amj.2017.0741.
32. Jain, P., V. Vyas, and A. Roy, *Exploring the mediating role of intellectual capital and competitive advantage on the relation between CSR and financial performance in SMEs.* Social Responsibility Journal, 2017 DOI: https://doi.org/10.1108/SRJ-04-2015-0048.
33. Johan, A., D. Isfianadewi, and T.A. Anwar, *Sales Force And Intelligence Strategic In Smes Performance: Case Study Of Batik's Enterprises In Bringharjo Yogyakarta.* JOURNAL OF BUSINESS STUDIES AND MANAGEMENT REVIEW, 2019. **2**(2): p. 128-136 DOI: https://doi.org/10.22437/jb.v2i2.7222.

34. Charterina, J., J. Landeta, and I. Basterretxea, *Mediation effects of trust and contracts on knowledge-sharing and product innovation: Evidence from the European machine tool industry*. European Journal of Innovation Management, 2018 DOI: https://doi.org/10.1108/EJIM-03-2017-0030.
35. Chatzoglou, P. and D. Chatzoudes, *The role of innovation in building competitive advantages: an empirical investigation.* European Journal of Innovation Management, 2017 DOI: https://doi.org/10.1108/EJIM-02-2017-0015.
36. Muchimba, M., *Age of Substance Use Initiation and Sexual Violence Victimization among Female Adolescents.* American Journal of Health Behavior, 2020. **44**(6): p. 840-847 DOI: https://doi.org/10.5993/AJHB.44.6.8.
37. Marshall, G. and A. Parra, *Innovation and competition: The role of the product market.* International Journal of Industrial Organization, 2019. **65**: p. 221-247 DOI: https://doi.org/10.1016/j.ijindorg.2019.04.001.
38. Aksoy, H., *How do innovation culture, marketing innovation and product innovation affect the market performance of small and medium-sized enterprises (SMEs).* Technology in Society, 2017. **51**(4): p. 133-141 DOI: https://doi.org/10.1016/j.techsoc.2017.08.005.
39. Snihur, Y. and J. Wiklund, *Searching for innovation: Product, process, and business model innovations and search behavior in established firms.* Long Range Planning, 2019. **52**(3): p. 305-325 DOI: https://doi.org/10.1016/j.lrp.2018.05.003.
40. Song, W., G.Z. Wang, and X. Ma, *Environmental innovation practices and green product innovation performance: A perspective from organizational climate.* Sustainable Development, 2020. **28**(1): p. 224-234 DOI: https://doi.org/10.1002/sd.1990.
41. Owotomo, O. and J. Maslowsky, *Adolescent E-cigarette Users at Highest Risk of Cigarette Smoking Intention.* American Journal of Health Behavior, 2021. **45**(4): p. 711-722 DOI: https://doi.org/10.5993/AJHB.45.4.10.
42. Nwachukwu, C., H. Chládková, and O. Fadeyi, *STRATEGY FORMULATION PROCESS AND INNOVATION PERFORMANCE NEXUS.* International Journal for Quality Research, 2018. **12**(1).
43. Lorenzo, J.R.F., M.T.M. Rubio, and S.A. Garcés, *The competitive advantage in business, capabilities and strategy. What general performance factors are found in the Spanish wine industry?* Wine Economics and Policy, 2018. **7**(2): p. 94-108 DOI: https://doi.org/10.1016/j.wep.2018.04.001.
44. Anning-Dorson, T., *Innovation and competitive advantage creation: The role of organisational leadership in service firms from emerging markets.* International Marketing Review, 2018 DOI: https://doi.org/10.1108/IMR-11-2015-0262.
45. Walsh, P.R. and R. Dodds, *Measuring the choice of environmental sustainability strategies in creating a competitive advantage.* Business Strategy and the Environment, 2017. **26**(5): p. 672-687 DOI: https://doi.org/10.1002/bse.1949.
46. Udriyah, U., J. Tham, and S. Azam, *The effects of market orientation and innovation on competitive advantage and business performance of textile SMEs.* Management Science Letters, 2019. **9**(9): p. 1419-1428 DOI: https://doi.org/10.5267/j.msl.2019.5.009.
47. Rayón, A., *Marketing Intelligence: How to Optimize the Marketing Strategy Through Big Data*, in *Recent Advances in Artificial Intelligence Research and Development*. 2017, IOS Press. p. 4-5.
48. Salguero, G.C., et al., *Competitive intelligence and sustainable competitive advantage in the hotel industry.* Sustainability, 2019. **11**(6): p. 1-12 DOI: https://doi.org/10.3390/su11061597.
49. Anwar, M., *Business model innovation and SMEs performance—does competitive advantage mediate?* International Journal of Innovation Management, 2018. **22**(07): p. 1850057 DOI: https://doi.org/10.1142/S1363919618500573.
50. Arnal, Á.J., et al., *Implementation of PEF treatment at real-scale tomatoes processing considering LCA methodology as an innovation strategy in the agri-food sector.* Sustainability, 2018. **10**(4): p. 979 DOI: https://doi.org/10.3390/su10040979.