Confirmation of Innovation Capabilities, Intellectual Capital, Entrepreneurship Orientation, and Performance SMEs Batik in East Java

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Abstract. This study aims to obtain confirmatory empirical evidence of the factors of innovation ability, intellectual capital, and entrepreneurial orientation to improve the performance of Batik SMEs in East Java. The population in this study is the owner of Batik SMEs in East Java with a total sample of 140 respondents. Analysis of the data used in this study is Confirmatory Factor Analysis. The results showed that human capital is the strongest indicator of intellectual capital formation. Risk taking is the strongest indicator in shaping entrepreneurial orientation. Marketing innovation is the strongest indicator in shaping innovation capability. Marketing performance is the strongest indicator of the performance of batik SMEs in East Java. For SME owners, it is necessary to increase intellectual capital related to social capital by cooperating with other batik entrepreneurs and setting aside a small part of the profits for the benefit of the citizens. More proactive in seeking market opportunities and marketing new products to new markets and increasing product innovation by creating products with different motifs and creating products with matching color combinations. In addition, seeking market opportunities and marketing new products to new markets is an important strategy and is able to increase product innovation with different motifs and matching color combinations.

Keywords: Intellectual capital · Entrepreneurial orientation · Innovation capability · MSME performance

1 Introduction

Due to various global organizations, including the ASEAN Free Trade Area, implementing a free market economy, every company will encounter complexity, change, and increasingly ferocious economic competition (AFTA). Large businesses are not the only ones affected by competition brought on by the establishment of a free market economy. Micro, Small, and Medium Enterprises are also affected (MSMEs). Batik
MSMEs are one type of MSMEs that must compete. Batik also still has issues managing SMEs because of internal issues as a lack of finance, scarce people resources (HR), a lack of technological expertise, insufficient business networks, and weak market penetration abilities. While this is going on, external factors affecting batik SMEs include an unfavorable business climate, a lack of facilities and infrastructure, issues with regional autonomy, issues with free trade, the nature of products with short lifespans, and restricted market access.

The performance of batik SMEs is impacted by the issue that East Javan SMEs are facing. [1] states that in the context of SMEs, the performance measuring scale of SMEs uses financial performance, including ROI and ROE. According to [2] SMEs’ financial and marketing performance are key performance metrics. The performance of SMEs is evaluated using financial, innovative, production, and market factors, according to [3]. Performance indicators are determined by financial performance, marketing performance, and competitiveness, according to [4] and [5]. [6] use profitability, productivity, and market to measure the performance of small and medium-sized businesses. Combining tangible and intangible assets is important to ensure the viability of batik SMEs in East Java. Intellectual capital is an intangible asset that combines competencies, knowledge, abilities, skills, experience, and client relationships to provide the business a competitive advantage in the market, according to [7]. [8] made use of relational, structural, and human capital. Human capital, social capital, and organizational capital are all applied by [9]. Human capital, structural capital, and relational capital are defined by [10].

The importance of an entrepreneur in carrying out business activities who dare to take chances, coordinate managing money or production facilities, and have new and creative solutions is essential to the success of batik SMEs. Companies with a strong entrepreneurial orientation will be more likely to take risks and not only stick to previous tactics, according to [11]. Entrepreneurial orientation is essential for the sustainability of the business in the fast-paced climate of today. Innovativeness, proactivity, and risk-taking are among the current management techniques that are seen to support entrepreneurial behavior, according to [12] and [13].

Increasing organizational success and longevity depends in large part on innovation capability. Innovation is relevant to MSME businesses as well as huge corporations [14]. Innovation capability, according to [15], is the idea of a company’s capacity to transform novel concepts into innovations. The ability to innovate was measured by [9] using five indicators: product, process, administration, marketing, and service. Administrative, technological, product, and process innovation are all used by [16]. Product innovation, process innovation, position innovation, and innovation paradigm are all emphasized by [14].

Given this context, there is a fundamental question for strategic management observers that is crucial for the survival of batik SMEs in East Java. It is necessary to carry out a confirmatory factor analysis study of intellectual capital, entrepreneurial orientation, innovation capability, and MSME performance.
Table 1. Operational Matrix of Research Variables

<table>
<thead>
<tr>
<th>No</th>
<th>Variable</th>
<th>Indicator</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Intellectual Capital</td>
<td>Human capital</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Customer capital</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Technology capital</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Social capital</td>
</tr>
<tr>
<td>2</td>
<td>Entrepreneurship Orientation</td>
<td>Risk-taking</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Proactive</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Confidence</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Openness</td>
</tr>
<tr>
<td>3</td>
<td>Innovation ability</td>
<td>Product innovation</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Technological innovation</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Marketing innovation</td>
</tr>
<tr>
<td>4</td>
<td>MSME Performance</td>
<td>Financial performance</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Product performance</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Marketing performance</td>
</tr>
</tbody>
</table>

2 Methods

This study employs a quantitative approach, which focuses on testing theories or concepts through metric/numerical measurement of variables and performing data analysis procedures with statistical equipment. It seeks to confirm MSME performance, intellectual capital, entrepreneurial orientation, and innovation capability, producing 216 batik and stamps with a total research sample of 140 [17]. Proportional random sampling is the method of sampling employed in this study. The primary data utilized in this study was collected directly from respondents using questionnaires containing the following operational variables (Table 1).

The study’s data were examined using confirmatory factor analysis (CFA). CFA is also employed in studies where the researcher is aware of the structure of the underlying latent variables. The person in question postulates, assumes, or reasons about the relationship between the observed measurements and the prior underlying factors based on theory or empirical investigation. In the context of structural equation modeling, CFA in particular is referred to as a measurement model since it exclusively concentrates on the relationship between factors and all measured variables (SEM).
3 Results and Discussions

3.1 Result

3.1.1 Instrument Testing

The results of testing the validity and reliability of the instrument can be seen in Table 2.

Based on the results of the validity and reliability tests conducted on the item question, it can be concluded that all of the questions were valid and reliable because they satisfied the requirements for the validity tests, which were Pearson’s product-moment correlation coefficient ($r$) of 0.3 and a Cronbach’s alpha value greater than or equal to 0.6.

3.1.2 Confirmatory Factor Analysis Results

Measurement results on the dimensions or indicators of variables that can form latent variables with CFA and determining indicators of variable intellectual capital, entrepreneurial orientation, innovation capability, and SME performance based on the factor loading value. Summary of CFA test results on indicators that make up the variable intellectual capital, entrepreneurial orientation, innovation capability, and performance of SMEs shown in Table 3.

According to Table 3, the variables for intellectual capital, entrepreneurial orientation, innovation capability, and performance of SMEs have indicators that have factor loading values (FL) with significance levels ($p$) 0.05 and CR values that display numbers larger than 2.0. Therefore, it follows that each of these variables is crucial for assessing the formation of intellectual capital, entrepreneurial orientation, innovation capacity, and SME performance. The indication that is thought to have the highest or strongest contribution to forming the intellectual capital variable, as seen by the loading factor value of each indicator, is human capital, with a loading factor value of 0.801. Risk-taking, with a loading factor value of 0.802, is the indicator thought to have the highest or strongest effect in producing the entrepreneurial orientation variable. Marketing innovation, with a loading factor value of 0.775, is the indicator that is thought to have the largest or strongest contribution to forming the variable of innovation ability, and marketing performance, with a loading factor value of 0.802, is thought to have the largest or strongest contribution to forming the MSME performance variable.

3.2 Discussions

3.2.1 Intellectual Capital Variable

Intellectual capital is an intangible asset that combines competencies, knowledge, abilities, skills, experience, and client relationships to provide the business a competitive advantage in the market, according to [18]. Intellectual capital, according to [19], is information and knowledge used in work to increase corporate value. Human capital, structural capital, and customer capital are the parts of intellectual capital, according to [20]. According to [21], intellectual capital is made up of human, structural, and relational capital. Human capital, organizational capital, and social capital are the three categories into which [22] separates intellectual capital. According to [23], intellectual
capital also encompasses human, customer, structural, social, technological, and spiritual capital. According to [24], structural capital, customer capital, and human capital make up intellectual capital. Human capital, structural capital, social capital, technological capital, and spiritual capital are the several types of intellectual capital, according to [25].
Table 3. Factors Loading (λ) Measuring Variables Intellectual Capital, Entrepreneurship Orientation, Innovation Capability, And MSME Performance

<table>
<thead>
<tr>
<th>Variables and Indicators</th>
<th>FL</th>
<th>CR</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intellectual capital - Human capital</td>
<td>0.801</td>
<td>7,172</td>
<td>0.000</td>
</tr>
<tr>
<td>Intellectual capital - Customer capital</td>
<td>0.758</td>
<td>7,293</td>
<td>0.000</td>
</tr>
<tr>
<td>Intellectual capital - Technology capital</td>
<td>0.707</td>
<td>6,741</td>
<td>0.000</td>
</tr>
<tr>
<td>Intellectual capital - Social capital</td>
<td>0.660</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Entrepreneurial orientation - Risk-taking</td>
<td>0.802</td>
<td>7,637</td>
<td>0.000</td>
</tr>
<tr>
<td>Entrepreneurial orientation - Proactive</td>
<td>0.595</td>
<td>6,191</td>
<td>0.000</td>
</tr>
<tr>
<td>Entrepreneurial orientation - Confidence</td>
<td>0.642</td>
<td>6,455</td>
<td>0.000</td>
</tr>
<tr>
<td>Entrepreneurial orientation - Openness</td>
<td>0.740</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Innovation ability - Product innovation</td>
<td>0.766</td>
<td>7,755</td>
<td>0.000</td>
</tr>
<tr>
<td>Innovation ability - Technological innovation</td>
<td>0.769</td>
<td>7,763</td>
<td>0.000</td>
</tr>
<tr>
<td>Innovation ability - Marketing innovation</td>
<td>0.775</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>MSME Performance - Financial performance</td>
<td>0.761</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>MSME Performance - Product performance</td>
<td>0.666</td>
<td>6,393</td>
<td>0.000</td>
</tr>
<tr>
<td>MSME Performance - Marketing performance</td>
<td>0.764</td>
<td>6,541</td>
<td>0.000</td>
</tr>
</tbody>
</table>

Indicators of intellectual capital used in this study include human, consumer, technological, and social capital. The factor loading (FL) value for human capital, consumer capital, technological capital, and social capital is 0.50 according to confirmatory factor analysis. As a result, all of these indicators are crucial for the development of intellectual capital, with human capital serving as the most reliable sign in the batik SMEs in East Java. These findings imply that East Javan batik SMEs have knowledge resources as a kind of intellectual capital since their owners’ high levels of expertise in creating batik motifs and creativity in developing new ones demonstrates the importance of human capital.

Following [21] assertion that human capital is the primary constituent of intellectual capital based on a combination of employee knowledge, skills, experience, and abilities that can create value for the organization, this section discusses the role of human capital in the formation of intellectual capital. Competence, attitude, and intellectual intelligence all contribute to an employee’s ability to create intellectual capital. Competence encompasses knowledge and education, whereas attitudes cover aspects of an employee’s working style. A person with intellectual intelligence can alter habits and come up with original solutions to issues. If the business can effectively use and develop the knowledge, competence, and abilities of its employees, human capital will grow.
3.2.2 Entrepreneurship Orientation Variable

Entrepreneurial orientation, according to [26], demonstrates the entrepreneurial process and provides an answer to the question of how business activities can be carried out, whereas the meaning of entrepreneurship is connected to the substance of entrepreneurial decisions by posing the question of what to do. The inclination to innovate (also known as innovativeness), the tendency to act pro-actively (also known as proactiveness), and the tendency to dare to take chances are among the current management techniques that are thought to encourage entrepreneurial behavior, according to [27]. Entrepreneurial orientation, according to [12] and [13], includes innovation, risk-taking, and proactiveness.

The risk-taking, proactiveness, self-confidence, and openness measures used in this study measure entrepreneurial orientation. Risk-taking, proactiveness, confidence, and openness all have factor loading (FL) values of 0.50 according to confirmatory factor analysis. Risk-taking is the strongest predictor of developing entrepreneurial orientation, but all of these signs are significant for doing so. As a result, SMEs in the batik industry in East Java will be more entrepreneurial if they take calculated risks. The willingness to experiment with new motives and to face the possibility of failure when running a business are examples of bravery in taking risks.

According to [28], taking risks is an opportunity where an entrepreneur succeeds in turning a concept into an opportunity. This is how risk-taking shapes entrepreneurial orientation. Risk-taking is the act of an entrepreneur who is daring in using the resources he has to run his firm even if there is no guarantee that success will be attained, according to [44].

3.2.3 Innovation Ability Variable

One of the fundamental components of an innovative firm is managing innovation capabilities. Increasing an organization’s capacity for innovation is essential for future success in the uncertain business environment of today [29]. Organizations have the innovative capabilities to hasten the creation of innovation. According to [30] an organization’s capacity to investigate and take advantage of chances to produce innovations is continuously improved.

The ability to innovate in terms of product, management, and process was examined by [43] in 2013. An innovation capabilities construct that has a relationship with customers is created by [9] and [31] and consists of product innovation, process innovation, marketing innovation, service innovation, and administrative innovation. Administrative innovation, technological innovation, product innovation, and process innovation are the constructs that [16] developed to describe innovation capability. Innovation and innovative activities include things like product innovation, process innovation, and innovation marketing, according to [14].

Product, technological, and marketing innovation are used as the study’s innovation capability indicator. Product innovation, technology innovation, and marketing innovation all have factor loadings (FL) of 0.50 according to confirmatory factor analysis. As a result, each of these indicators is crucial for developing innovative capabilities, with marketing innovation serving as the best example. These findings indicate that batik
SMEs in East Java are more focused on marketing than on innovation, as seen by the availability of a variety of new items that cater to consumer needs through online media and the expansion of marketing reach through online media (Facebook, WhatsApp, and Instagram).

According to [32], the implementation of new marketing techniques that involve major changes in product design or packaging, product positioning, product promotion, or product price is the marketing innovation that contributes to the ability of innovation. Business players must develop distinctive, innovative products that stand out from the competition in order to market them, and customers are in high demand for the products that are sold. Product development, product design, marketing initiatives, consumer needs research, customer service, and branding are all necessary components of marketing innovation. Innovative marketers work to tailor products to meet customer needs. When attempting to increase market performance, marketing innovation is a requirement [33].

### 3.2.4 MSME Performance Variables

According to [34] performance is the outcome of achieving a company’s internal and external goals. Performance, according to [36], is the accomplishments of the organization in a variety of operational areas, including finance, marketing, technology, funding, and human resources. According to [4], performance assessment is based on the owner’s viewpoint because the true conditions in MSMEs do not yet have records that comply with applicable financial accounting standards.

According to [1], the MSME performance measuring scale in the context of MSMEs employs financial performance. [2] assert that MSME performance indicators can be observed in financial and marketing performance. The performance of MSMEs is evaluated using financial, innovative, production, and market factors, according to [3]. MSME performance indicators are determined by financial performance, marketing performance, and competitiveness, according to [35] and [36]. [6] use profitability, productivity, and market to measure the performance of small and medium-sized businesses. [37] found that financial performance, product performance, and marketing performance could all be used to gauge MSMEs’ performance. Sanchez and Marin (2005) gauge SMEs’ effectiveness. [38] use the metrics of profitability, productivity, and marketing to assess the success of SMEs. [39] use productivity, business profitability, and sales growth to gauge the performance metrics of MSMEs. [40] uses indications of the level of sales volume, an increase in the number of customers, the company’s capacity for profit, and the degree of customer happiness to gauge the performance of MSMEs.

This study uses financial performance, product performance, and marketing performance as MSME performance indicators. Financial performance, product performance, and marketing performance all have factor loading values (FL) of 0.50 according to confirmatory factor analysis. As a result, each of these measures is crucial for determining how well MSMEs function, with marketing performance serving as the most reliable predictor. According to these findings, batik SMEs in East Java will perform well if sales growth and the number of consumers improve over the past three years.

According to [41], marketing performance is characterized by strong sales growth from prior years, higher growth than competitors, as well as having a wider market
share than prior years. This is why marketing performance plays a role in influencing the success of MSMEs. According to [42], market performance, such as sales growth, market share, and market development in marketing performance studies, is the key to corporate success since it affects customers, markets, and financial organizations.

4 Conclusion

Based on data analysis and discussions about confirmatory factors like intellectual capital, entrepreneurial orientation, innovation ability, and the performance of SMEs producing batik in East Java Province, it can be said that all of these indicators are crucial for determining factors like intellectual capital, entrepreneurial orientation, innovation ability, and performance of SMEs. The indication believed to have the largest or strongest contribution in producing the intellectual capital variable is also considered to be human capital, and the strongest form of entrepreneurial orientation variable is risk-taking, when examined from the loading factor value of each indicator. Marketing innovation is the strongest variation of the innovation ability variable, and marketing performance is the strongest variation of the SMEs performance variable.

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References


27. Covin, Jeffrey G. dan Dennis P. Slevin. A Conceptual Model of Entrepreneurship As Firm Behavior, Baylor University, 1991
33. 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, Volume 51, pp. 133–141, 2017