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INFLUENCE OF KNOWLEDGE MANAGEMENT ON INNOVATIVE BEHAVIOR AND
ITS IMPACT ON MANAGERIAL PERFORMANCE OF MEDIUM-SCALE BATIK
INDUSTRY OWNERS IN WEST JAVA, INDONESIA

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ABSTRACT:

Managerial performance of the batik industry is a condition in which batik business owners can conduct management functions. The competition with batik-patterned textile products and the lack of public understanding of using batik as a form of appreciation for their domestic products are the biggest challenges faced by batik entrepreneurs. This study aims to determine empirically the influence of knowledge management on innovative behavior and its impact on managerial performance of medium-scale batik industry owners in West Java. This study uses mixed-method research. Quantitative methods use a questionnaire as the dominant instrument to obtain the main data, while the qualitative method uses semi-structured interviews, focus group discussion with Delphi techniques, and observations to the batik industry. Variant-based *structural equation modeling* with partial least square is the analytical tool utilized to test the hypothesis and determine the relationship between variables. The research variables comprised the following: exogenous (knowledge management), endogenous (managerial performance), and intervening (innovative behavior) variables. Research results prove the following. 1) Knowledge management has a positive effect on innovative behavior. 2) Innovative behavior has a positive effect on managerial performance. 3) Knowledge management has a positive effect on managerial performance. 4) Knowledge management through innovative behavior has a positive effect on managerial performance.

The results of the mediation effect test prove that innovative behavior completely mediates the relationship between knowledge management and managerial performance. Thus, the managerial performance of middle-scale batik entrepreneurs in West Java can be improved through knowledge management-based innovative behavior.

INTRODUCTION

The history records that Indonesian batik is recognized by the UNESCO as a whole technique and technology as well as the development of motifs and culture that is full of knowledge. Moreover, Indonesian batik has been officially designated as “Intangible Cultural Heritage (ICH) or Masterpieces of the Oral and Intangible Heritage of Humanity’ since October 2, 2009, at the UNESCO session in Abu Dhabi. However, batik has experienced a decline in performance since 2015 due to the increasingly fierce competition, especially that with batik-patterned textile products. Meanwhile, the batik industry is generally included in the small- and medium-scale enterprises, which have unique characteristics and are different from large-scale businesses. Therefore, the central issues that can be used as a basis for recommendations for conducting this research are as follows: (1) knowledge management, (2) innovative behavior, and (3) managerial performance.

Knowledge management (KM). The emergence of KM is attributed to its increasing attention from various circles. Numerous studies have revealed that KM has contributed to improving organizational quality and performance. KM has also underpinned the improvement of individual intellectual abilities (Drucker, 1999); as a new business trend (Swan, Newell, Scarbrough, and Hislop: 1999); as a management process related to knowledge (Sondari, 2013); as a driving force for intellectual capital and superior company performance (Cabrilo and Dahms, 2018). Many studies have also shown the application of KM in large companies. However, the aforementioned discussion does not indicate that SMEs cannot apply KM. SMEs can apply KM by adopting KM from large companies (Hutchinson and Quintas, 2015).

Innovative behavior (IB). The theme of this research was raised considering the concept that behavior is multidimensional/multistage concerning the process of finding ideas and creativity. IB is defined as the act of seeking, developing, and implementing new ideas and solutions in current situations (Scott and Bruce, 1994). Creativity, as an exploratory process, focuses on ideas to form IB, which involves the implementation of new ideas and works (Paulus, Dzindolet, & Kohn, 2012). In reality, innovation and business success in SMEs depend on top management (Eisenhardt, 2013).

Managerial performance (MP). The research on MP is generally conducted at large businesses (such as Byham (2013); Savaser and Ciamara (2017); Nguyen, Mia, Winata, and Chong (2017)). Meanwhile, research on the topic of MP in SMEs, especially in the batik industry, has never been found thus far. MP in this study is related to the implementation of management functions by managers (Mahoney et al. 1963; Kornelius Harefa, 2008; Robin and Coulter, 2012).

The problem formulations that can be submitted in this study are as follows.

1. How does KM affect IB in the medium-scale batik industry in West Java Province?
2. How does IB affect MP in the medium-scale batik industry in West Java Province?
3. How does KM affect MP in the medium-scale batik industry in West Java Province?
4. How does KM affect MP through IB in the medium-scale batik industry in West Java Province?

LITERATURE REVIEW AND HYPOTHESIS

Knowledge Management

The study of knowledge topic remains unknown with certainty, but knowledge has been known since humans knew civilization or even before that period. Knowledge is implicitly managed by the person doing the job, and tangible and intangible skills and techniques are needed. In the next process, KM does not focus on better things but on determining how to do things effectively. Numerous studies have shown that KM is defined as all organizational activities through the management of knowledge assets to increase competitiveness and ensure innovation at the employee and organizational levels (Darroch, 2005); Mehrdad, Cegini (2013); Atkociuniene, Girniene (2014); Siadat et al. (2015); Shateri et al. (2016). Darroch (2005) developed the following three scales: knowledge acquisition, knowledge dissemination, and responsiveness/responsiveness to knowledge. Girniene and Atkociuniene (2015) defined KM as the process of identifying, acquiring, creating, sharing, and storing knowledge as a condition for creating innovation and performance.

Hutchingson and Quintas (2015) stated that the KM process generally comprises the following: creating knowledge, communicating/sharing, synthesizing knowledge, and applying and reusing knowledge. Another definition is expressed by Keishing and Renukadevi (2016), stating that MP is directed for the creation of various innovations and formulated into the following five dimensions: (1) knowledge identification, (2) knowledge acquisition, (3) knowledge creation, (4) knowledge sharing, and (5) knowledge storage. KM is defined as “a social process used by organizations through the management of knowledge assets to create innovation and conducted integrally through human resource empowerment as a condition for increasing competitive advantage and performance.”

Innovative Behavior

In the current era of globalization, every organization/company is required to build a conducive working climate that is directed to facilitate new breakthroughs to produce innovative products. Wheelen & Hunger (2015) indicated that IB is closely related to innovation, which is related to the ability to create customer value (Ghorbani et al., (2014); Kaya & Patton (2011); Larsen, P and Lewis, A (2007)). Numerous studies have shown that IB is related to their task performance (Dorner, Gassmann, and Morhart, 2012). Farr and Ford (1990) refer to IB with the term innovative work behavior. IB can be regarded as multidimensional (De Jong & Den Hartog, 2007; Scott and Bruce (1994); Kanter (1988); Kleysen and Street (2001)). Kaya & Patton (2011) indicated that innovation is related to customers. Naido (2010) believed that innovation is a mechanism that changes market orientation into superior performance. Amabile (1996) and Pieterse et al. (2010) stated that creativity and innovation are two different concepts; that is, creativity involves the generation of new ideas, while innovation includes the generation and application of new ideas. Janssen (2000) and Feirong & Richard (2010) proposed a one-dimensional model, in which individual IBs are used to apply unique and useful concepts to products and the work process.

The two-dimensional model proposed by (Krause (2004); West, Dawson, Birdi

& Patterson, (2006); Bysted and Jespersen (2014)) stated that IB determines the following two components for innovation behavior: (1) idea generation and testing and (2) idea implementation. Similar to West et al. (2006), De Jong & Den Hartog (2007) developed IB with two dimensions, namely idea generation and application/implementation. Innovative behavior can be defined as “a number of individual activities that are built to generate innovation and performance.”

Managerial Performance

The measurement of the achievement of company goals related to human resources is related to actual performance and performance standards. Therefore, conducting an assessment of what has been done is necessary. Performance measures can be examined considering certain quantity and quality according to predetermined standards (tangible or intangible). Performance measurement plays an important role in managing organizational performance to achieve the desired goals (Neely et al, 1995 p.80); (Medori & Steeple, 2000). As a central figure, managers play an important role in achieving company goals. The duties and responsibilities of managers differ from those of employees. A manager is a person who runs and determines the direction and policies of the company. Sule and Saefullah (2014: 18) indicated that managers are people who conduct management activities. MP is a measure of how effectively and efficiently managers have worked to achieve organizational goals (Rivai and Sagala, 2013: 549). Moreover, MP is the manager’s ability to conduct managerial activities, namely planning, investigation, coordination, supervision, staffing, negotiation, and representation (Mahoney et al, 1963).

Managerial performance is the ability or work performance achieved by personnel or a group of people in an organization to conduct their functions, duties, and responsibilities in performing company operations (Harefa, 2008: 17). MP is defined “as a manager’s ability to conduct managerial activities which are translated into management functions to achieve the company’s strategic goals that have been set.” The concept of this research paradigm can be constructed as follows.

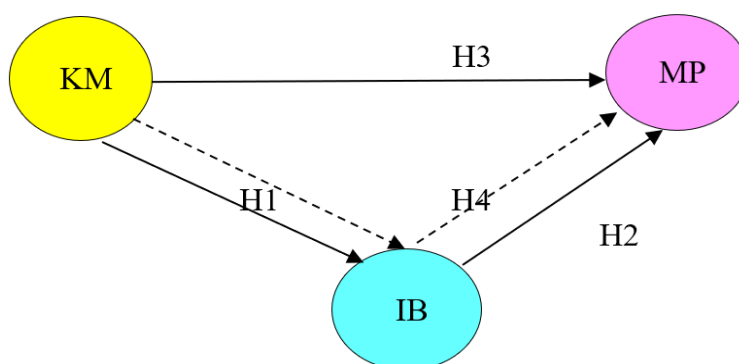


Figure 1. Research Paradigm

Tests of Hypotheses

1. KM has a positive effect on IB in the medium-scale batik industry in West Java Province.
2. IB has a positive effect on MP in the medium-scale batik industry in West Java Province.
3. KM has a positive effect on MP in the medium-scale batik industry in West

Java Province.

4. KM has a positive effect on MP through IB in the medium-scale batik industry in West Java Province.

RESEARCH METHOD

Research Design

This study used mixed-method research (MMR). The core assumption of this research type is to provide a more complete understanding than using only one approach in answering the formulation of research problems (Creswell, 2016: 5). The use of MMR is based on the consideration that these research variables are rarely used, especially in studies in SMEs. The proposed model in this study is an original model that has never been conducted in previous studies. Thus, qualitative data enrichment is required to analyze this model.

Considering time and weight, this research was conducted concurrently embedded; that is, the research method of quantitative and qualitative data collection is simultaneously unbalanced, with an emphasis on a quantitative approach strategy. Qualitative methods are used to complement and enrich quantitative methods by conducting semi-structured interviews, focus group discussions, and observations to batik companies. The observation unit is the owners of the medium-scale batik industry in West Java. The collection time of the research data was from February 2019 to November 2019.

The analysis used in this research is descriptive analysis and verification. The type of quantitative data required is ordinal data, and qualitative data are significantly qualitative. Furthermore, quantitative and qualitative data are combined for analysis through a comparative process to determine which qualitative data can strengthen, expand, and weaken or distort quantitative data. The analytical tool used to measure/test the hypothesis of this study is structural equation modeling (SEM) based on variant or partial least square (PLS). The use of the PLS-SEM test tool is based on the consideration of research objectives, approaches, measurement model specifications, structural models, data characteristics, model evaluations, and software errors as stated by Chin (1998), Hair et al. (2010), Hwang et al. (2010), and Pirouz (2006).

Operationalization of Research Variables

Knowledge management is translated into the following four dimensions. (a) Knowledge acquisition (KA), which comprises the following five indicators: assessing employee attitudes to improve skills, encourage/motivate employees to improve skills, a well-developed financial reporting system, sensitivity to information on changes in the market, and retaining trained employees; (b) Knowledge dissemination (KD), which comprises three indicators: spreading knowledge, using technology to facilitate communication, and preference for written communication (knowledge storage) to spread knowledge; (c) Knowledge organization (KO), which comprises three indicators: recording, storing, and caring for knowledge; (d) Responsiveness to knowledge (RK), which comprises three indicators: knowledge of customers, competitors, and technology.

Innovative behavior comprises the following two dimensions: (a) Idea generation (IG), which includes focusing on problems, finding ideas, and

proposing the resulting ideas; (b) Implementation of ideas (IMI), which includes the introduction of new idea procedures, use of new ideas, and development of new ideas. Managerial Performance comprises four dimensions: (a) Planning (P) (setting business goals and targets, formulating strategies to achieve business goals and targets, and setting standards of success in achieving business targets and goals); (b) Organizing (O) (allocating resources owned, suitability in assigning tasks, establishing the necessary procedures, creating an organizational structure, human resources (HR) recruitment, conducting HR selection and training for employees, and suitability in placing HR in the right position); (c) Directing (D) (providing motivation for employees to work effectively, presenting an explanation of routine tasks to employees, and describing the set policies); (d) Controlling (C) (evaluating the achievement of business goals and targets, correcting deviations, and performing alternative solutions in solving problems associated with achieving business goals and targets).

RESULTS AND DISCUSSION

Evaluation of Measurement Model (Outer Model)

The constructs built in this study are multidimensional. Therefore, the testing of the validity model goes through two stages: second- and first-order confirmatory factor analyses. The measurement of the model (outer model) is conducted before performing the structural model analysis (inner model). This measurement aims to test the validity and reliability of the built model in this study. Tests were conducted on the dimension and latent construct-forming dimensions using confirmatory factor analysis (CFA). The constructs built in this study are reflective and multidimensional in form. Therefore, the validity model testing goes through second- and first-order CFA using Smart PLS 3.00 assistance. Several loading factor values ≤ 0.70 are available for the measurement of the second-order CFA. All indicators with a loading factor value ≤ 0.70 must be discarded (dropped) based on the standards. The results of this process form a structural equation model, as shown in Figure 2.

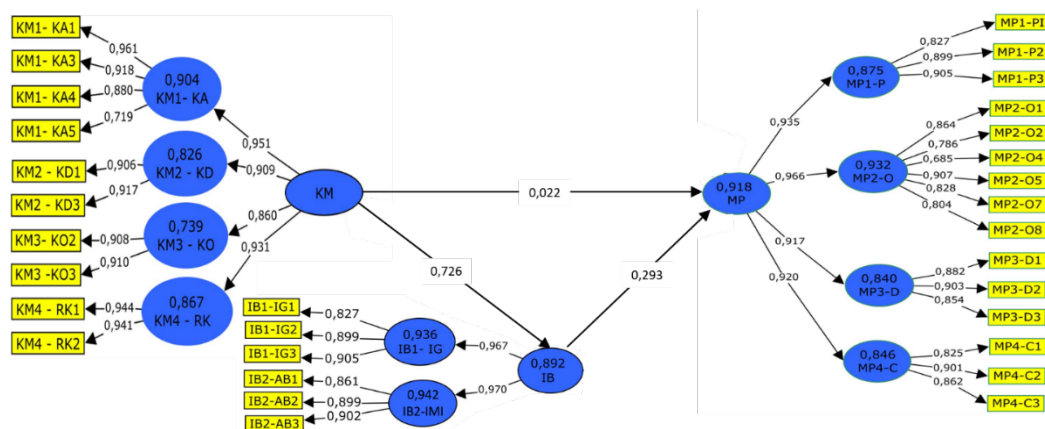


Figure 2. Structural Equation Model

Measurement of the First-Order CFA

The test results presented in Table 1 show that all indicators have a loading factor value larger than 0.70 with a statistical t-value >1.96 and a P-value less than 0.05. These data show that all indicators in measuring the latent variables (dimensions) in the estimated model can be declared valid. Therefore, the first-

order CFA can be conducted to measure the extent of the validity of all dimensions in explaining latent variables. Table 1 shows the recapitulation of test results.

Table 1. Loading Factors from Latent Variables to Dimensions

Latent Variable to Dimension	Original Sample	t-Statistics	P-Values	Information
Knowledge Management				
KM → KM ₁ -KA	0.951	115.636	0.000	Valid
KM → KM ₂ -KD	0.909	56.919	0.000	Valid
KM → KM ₃ -KO	0.860	21.468	0.000	Valid
KM → KM ₄ -RK	0.931	81.685	0.000	Valid
Innovative Behavior				
IB → IB ₁ -IG	0.967	171.615	0.000	Valid
IB → IB ₂ -IMI	0.970	185.823	0.000	Valid
Managerial Performance				
MP → MP ₁ -P	0.935	71.039	0.000	Valid
MP → MP ₂ -O	0.966	125.363	0.000	Valid
MP → MP ₃ -D	0.917	50.036	0.000	Valid
MP → MP ₄ -C	0.920	54.629	0.000	Valid

The measurement is continued by calculating the validity through assessment of average variance extracted (AVE). Table 2 shows that the AVE value of all latent variables is > 0.50. Thus, all latent variables in the estimated model are declared valid.

Table 2. Construct Validity

Latent Variable	Average Variance Extracted (AVE)	Information
KM	0.574	Valid
KM ₁ - KA	0.765	Valid
KM ₂ - KD	0.831	Valid
KM ₃ - KO	0.826	Valid
KM ₄ - RK	0.888	Valid
IB	0.736	Valid
IB ₁ -IG	0.771	Valid
IB ₂ -IMI	0.799	Valid
MP	0.554	Valid
MP ₁ -P	0.725	Valid
MP ₂ -O	0.665	Valid
MP ₃ -D	0.774	Valid
MP ₄ -C	0.745	Valid

The results of the construct reliability test as presented in Table 3 show the composite reliability and Cronbach’s alpha values of all latent variables > 0.70. Therefore, all dimensions in measuring the latent variables in the estimated model are declared reliable.

Table 3. Construct Reliability

Variable	Composite Reliability	Cronbach's alpha	Information
KM	0.947	0.937	Reliable
KM ₁ -KA	0.928	0.894	Reliable
KM ₂ -KD	0.908	0.797	Reliable
KM ₃ -KO	0.905	0.790	Reliable
KM ₄ -RK	0.941	0.874	Reliable
IB	0.943	0.927	Reliable
IB ₁ -IG	0.910	0.851	Reliable
IB ₂ -IMI	0.923	0.875	Reliable
MP	0.955	0.947	Reliable
MP ₁ -P	0.887	0.808	Reliable
MP ₂ -O	0.922	0.897	Reliable
MP ₃ -D	0.911	0.853	Reliable
MP ₄ -C	0.897	0.828	Reliable

The results of construct reliability testing as presented in Table 3 show the composite reliability and Cronbach's alpha values of all latent variables >.0.70. Therefore, all dimensions in measuring the latent variables in the estimated model are declared reliable, and testing the structural model (inner model) can be continued. Below are the results of the inner model evaluation for endogenous variables of Innovative Behavior with Managerial Performance.

Table 4. Evaluation of Structural Models

Endogenous Variables	R ²	R ² Adjusted	P-Values	Q ²	GoF
IB	0.893	0.890	0.000	0.596	0.609
MP	0.917	0.914	0.000	0.467	

The test results shown in Table 4 reveal that the values of R² and R² adjusted for innovative behavior of 0.893 and 0.890 > 0.75, respectively, are classified as strong/substantial, while those of R² and R² adjusted managerial performance of 0.917 and 0.914 > 0.75, respectively, are classified as strong/substantial based on the established criteria (Hair et al., 2017 and Henseler et al., 2009). In the criteria, the R² value is 0.75 (strong/substantial), 0.50 (moderate), and 0.25 (weak), the p-value of 0.000 < 0.05, and the predictive relevance (Q²) of 0.596 and 0.467 > 0.35 is classified as strong. Overall, the goodness of fit value is large (0.609 > 0.35). The strong adjusted R² value and predictive relevance (Q²) and the large goodness of fit indicate the robustness of the research model. This finding proves the good fit of the research model because it is supported by empirical conditions. Moreover, hypothesis testing (inner model measurement) in this study can be continued due to the validity and reliability of the research model and its good fit.

Measurement of the Structural Model (Inner Model)

Based on the structural equation modeling above, a structural model equation can be presented as follows:

$$IB = 0.726 KM + \xi_1 \dots\dots\dots (1)$$

$$MP = 0.022 KM + 0.293 IB + \xi_2 \dots\dots\dots (2)$$

Tests of Hypothesis

Hypothesis 1

H_{1:γ₁₁} > 0 : Knowledge management has a significant positive effect directly on the innovative behavior of medium-scale batik entrepreneurs in West Java

The results of statistical testing are presented in Figure 3.

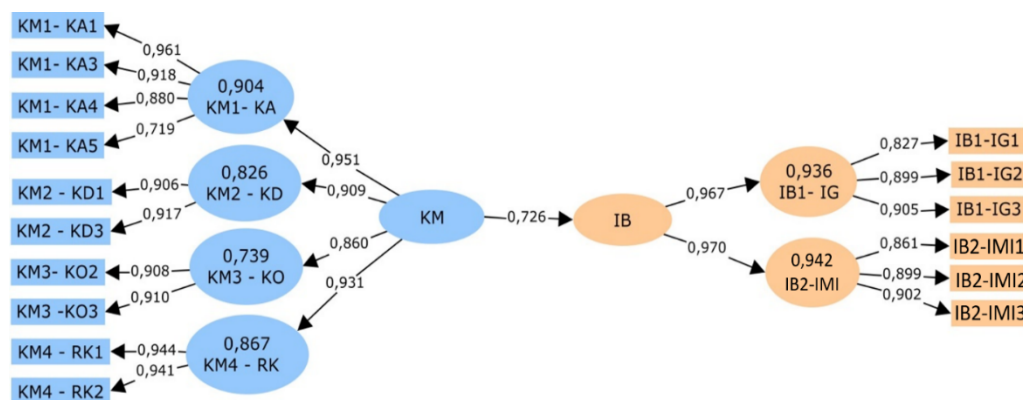


Figure 3. Effect of Knowledge Management on Innovative Behavior

The statistical test results shown in Figure 3 produce a path coefficient of 0.726, indicating a direct effect from knowledge management to innovative behavior. Furthermore, the significance of the effect can be determined through hypothesis testing using the bootstrapping procedure with the following results.

Table 5. Influence of Knowledge Management on Innovative Behavior

Variable Relationships	Original sample	Sample Mean	Standard Deviation	T-Statistic	P-Value	Conclusion
KM → IB	0.726	0.728	0.060	12.084	0.000	Hypothesis accepted

Information: T-table one-tailed test = 1.65 with a significance level of 5 %

The test results in Table 5 show that the path coefficient value of 0.726 is significant at the t-statistic 12.084 > t-table 1.65 and at a P-value of 0.000 < a significance level of 0.05. Thus, the hypothesis, which states that knowledge management has a positive effect on innovative behavior, can be accepted. This result means that additional innovative behavior of batik entrepreneurs in West Java will be built with the effective application of knowledge management.

The results of this study are consistent with those of Darroh (2005), which indicates that MP plays an important role in the company, and companies with knowledge management capabilities will encourage companies to use their resources efficiently, innovatively, and with high performance. This study produces a path coefficient value, which is provided by knowledge management to innovative behavior. These results illustrate that the batik business will effectively develop if supported by strong knowledge. Moreover, knowledge should be managed properly to develop high skills and subsequently improve skills (operational and managerial). Knowledge management is a process in

which knowledge is managed systematically to improve behavior, which leads to innovation (innovative behavior).

Hypothesis 2

H₂: $\beta_{21} > 0$: Innovative behavior has a direct and significant positive effect on managerial performance

The results of statistical testing are presented in Figure 4.

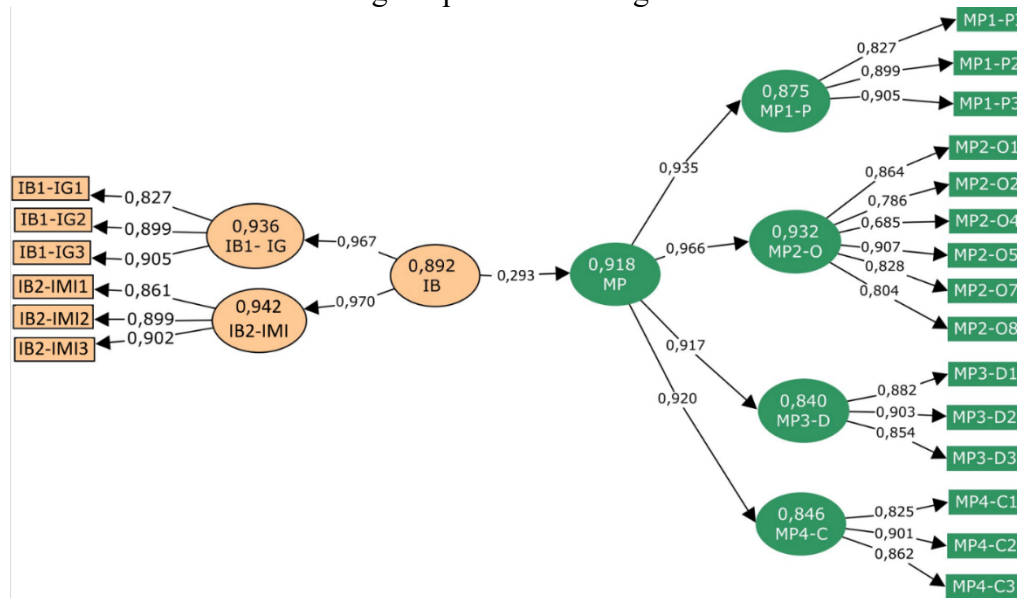


Figure 4. Influence of Innovative Behavior on Managerial Performance

The results of the statistical tests are shown in Figure 4, which reveals a path coefficient of 0.293, thereby indicating a direct effect (direct effect) between innovative behavior on managerial performance. Furthermore, hypothesis testing was conducted through the bootstrapping procedure to determine the significance of this effect, and the following results are presented in the table below.

Table 6. Effect of Innovative Behavior on Managerial Performance

Variable Relationships	Original Sample	Sample Mean	Standard Deviation	T-Statistic	P-Value	Conclusion
IB → MP	0.293	0.313	0.109	2.677	0.008	Hypothesis accepted

Information: t-table for one-tailed test = 1.65; 5%.

The test results in Table 6 show that the path coefficient of 0.293 is significant at the t-statistic $2.677 > t\text{-table } 1.65$ and a P-value of $0.008 < a \text{ significance level of } 0.05$. Thus, the hypothesis, which states that innovative behavior has a positive effect on managerial performance, can be accepted. This finding means that the managerial performance of the batik entrepreneur will be high when improved innovative behavior is applied in the batik business in West Java.

The results of this study are consistent with those of Weelen and Hunger (2015), which indicated that innovative behavior is closely related to innovation. Business innovation is intended to describe new products, services, organizational methods, and approaches that enable businesses to achieve

extraordinary results. Larsen et al. (2007) and Kaya and Patton (2011) agree that innovation, which is the ability to innovate, is one of the most important characteristics of entrepreneurs, and such an ability in question is innovative behavior. Meanwhile, one of the findings of Samuel Aryee et al. (2012) revealed that job involvement is related to innovative behavior, and innovative behavior is related to task performance.

Hypothesis 3

H₃: $\gamma_{21} > 0$ Knowledge management has a significant positive effect directly on managerial performance

The statistical test results for the above hypotheses are presented as follows.

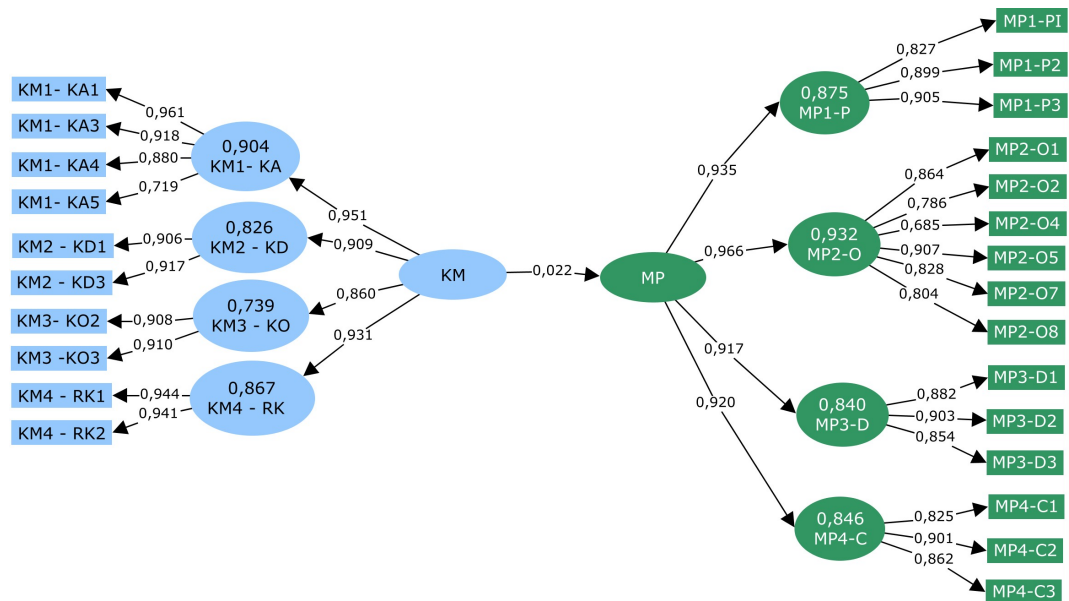


Figure 5. Effect of Knowledge Management on Managerial Performance

Figure 5 shows that the direct effect path coefficient from knowledge management to managerial performance is 0.022. Furthermore, hypothesis testing is conducted using the bootstrapping procedure as follows to determine the significance of the direct effect.

Table 7. Effect of Knowledge Management on Managerial Performance

Variable Relationships	Original Sample	Sample Mean	Standard Deviation	T-Statistic	P - Value	Conclusion
KM → MP	0.022	0.004	0.085	0.256	0.798	Hypothesis rejected

Note: T-table for one-tailed test = 1.65; $\alpha = 5\%$

The results of statistical tests in Table 7 indicate that the path coefficient of 0.022 is insignificant with a t-statistic value of $0.256 < t\text{-table } 1.65$ and a P-value of $0.798 > \text{significance level of } 0.05$. Thus, the hypothesis that knowledge management has a positive effect on managerial performance cannot be accepted. This finding shows that knowledge management in the batik industry in West Java does not directly have a heavy impact on managerial performance because knowledge management is a system tool used to achieve what is desired. This finding is consistent with the research conducted by Egbu et al. (2005), Holm and Poulfelt (2003), and Skyme (2002), which revealed that knowledge

management is generally conducted in large companies. The management of large companies realizes that knowledge is a valuable asset and is related to the progress of the company, resulting in current and future advances. By contrast, the practice of research on knowledge in SMEs is rare. This rarity is due to various obstacles faced by SMEs and different characteristics from those of large companies. A total of 79% do not have an action plan regarding knowledge management activities (Daff, 2007; Holm, 2003). Meanwhile, the owner is concurrently manager and centralized decision making, and centralization will impact on knowledge management (Culkin and Smith, 2000).

The opinion above is in accordance with the findings that illustrate the reality in the batik industry in West Java, wherein the owner generally doubles as the manager and decision maker. Therefore, knowledge is naturally and informally managed and designed on the basis of research results. Moreover, knowledge is stored in the mind/memory and passed down orally.

Hypothesis 4

H4: $\gamma_{12} \beta_{21} > 0$: Knowledge management has a positive effect on managerial performance through innovative behavior

The following are the results of statistical testing of the fourth hypothesis.

Table 8. Effect of Knowledge Management on Managerial Performance through Innovative Behavior

Variable Relationships	Original Sample	Sample Mean	Standard Deviation	T-Statistic	P-Value	Conclusion
KM → IB → MP	0.213	0.228	0.081	2.612	0.009	Hypothesis accepted

Information: t-table for one-tailed test = 1.65; $\alpha = 5\%$

Table 8 shows that the path coefficient between knowledge management and managerial performance is mediated by innovative behavior of 0.213, which is significant with a t-statistic value of 2.612 > t-table 1.65 and a P-value of 0.009 < a significance level of 0.05. Thus, the hypothesis, which states that knowledge management has a positive effect on managerial performance through innovative behavior, can be accepted. This finding means that innovative behavior mediates the influence between knowledge management and managerial performance of the batik business in West Java.

This result is consistent with the opinion of Mulyadi and Jhony (1999), which states that someone who holds a managerial position is expected to produce high managerial performance. In contrast to general employee performance, which is concrete, managerial performance is abstract and complex. Therefore, Mintzberg (Robbin and Coulte; 2012) states that the managerial performance of a manager is evident on the side of the role it plays, that is, the interpersonal role, the role of decision makers, and the role of information carriers.

Therefore, knowledge management will not directly affect managerial performance. However, knowledge management is needed as a basis and a management tool to produce psychological changes, which are reflected in the form of innovative work behavior. Thus, knowledge management will positively influence managerial performance through innovative behavior.

Furthermore, different from other previous studies, which generally took the unit of analysis in large and high-tech companies and were rarely conducted in SMEs, this research was performed in the SME unit (in this case, medium enterprises, in which the application will be different from that in large companies). The current study is similar to the research conducted by Hutchingson and Quintas (2015). In this study, the need for knowledge management in companies takes place formally to facilitate its development because compiling, storage, and knowledge distribution in a coordinated manner are necessary. Moreover, knowledge management requires a sporting tool in the form of Information Technology. However, Hutchingson and Quintas (2015) indicated that the aforementioned finding does not mean that SMEs cannot perform knowledge management. Knowledge management of SMEs must adopt formal knowledge management such as that in large companies, namely through informal knowledge management.

The research results are consistent with the opinion above and are also consistent with the findings that describe the reality in the medium-scale batik industry in West Java. The majority of developments are relatively different from that in large companies. This difference means that the implementation of knowledge management is conducted informally, and all decisions are strategic and tactical-centered on the leader (batik business owner).

The magnitude of the influence of the three variables on managerial performance variables is indicated by the value of the coefficient of determination (R^2 adjusted), which is 91.40 %. This result indicates that the influence of the three independent variables is strong according to the criteria of Hair et al., (2017), where the R^2 Value is 0.75 (strong/substantial), 0.50 (moderate), and 0.25 (weak). Meanwhile, the remaining 8.60 % is influenced by other variables outside the research model (error = ζ_1). This finding empirically proves that knowledge management and innovative behavior contribute to achieving managerial performance for batik entrepreneurs in West Java. Furthermore, hypothesis testing is conducted to determine the significance of the influence of the two independent variables of knowledge management on managerial performance through the dependent variable of innovative behavior. The influence of knowledge management on managerial performance directly or mediated by the innovative behavior of batik entrepreneurs in West Java is described as follows.

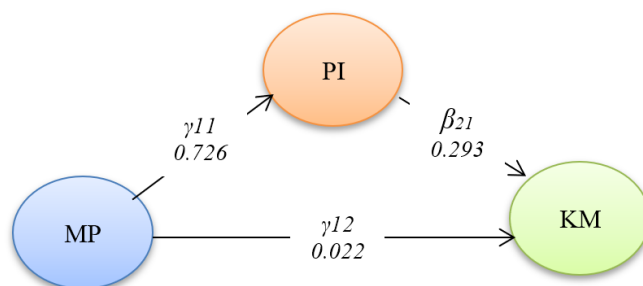


Figure 6. Direct and Indirect Effects of Knowledge Management on Managerial Performance Mediated by Innovative Behavior

Furthermore, innovative behavior mediates the influence of knowledge management and managerial performance. Thus, the form of mediation must be

determined by the procedure for testing the mediation effect of Hair et al. (2014).

Table 9. Mediation Effects of Testing Procedure

Variable Relationships	Direct Effect ($\gamma_{11}, \beta_{21}, \gamma_{12}$)	Test results	Type of Mediation
KM \rightarrow IB (γ_{11})	0.726	Significant	<i>Fully mediating</i>
IB \rightarrow MP (β_{21})	0.293	Significant	
KM \rightarrow MP (γ_{12})	0.022	Not Significant	

The results of statistical testing in Table 9 show that the direct effects between KM on IB (γ_{11}) and that between IB (β_{21}) on MP are significant, while the direct effect of KM (γ_{21}) on MP is not significant. Therefore, the form of mediation is fully mediating, which means that innovative behavior fully mediates the relationship between knowledge management and managerial performance. Therefore, batik entrepreneurs in West Java can achieve good managerial performance when implementing knowledge management, which leads to innovative behavior.

These results are consistent with those of Chen and Huang (2009). 1) Strategic human resource practices are positively related to knowledge management capacity, which, in turn, has a positive effect on innovation performance. 2) The results empirically provide evidence that knowledge management capacity plays a mediating role between practical human resource management and innovation performance. 3) Their results also highlighted managerial performance and future research directions. Thus, knowledge management can improve a person’s managerial performance indirectly, and factors that mediate such an improvement are available. This finding is consistent with that found in the batik industry in West Java, wherein knowledge management practices are translated into other activities, and these activities act as a bridge to create other results. For example, knowledge of dyeing techniques in the process of dyeing batik cloth will produce improved colors that are resistant (not easily faded); consequently, such a condition will create effective results, increased profits, and enhanced individual (manager) performance.

Overall, the results of this study reveal that KM is beneficial for the formation of a middle-scale batik entrepreneur IB in West Java. KM is a system of application and development of knowledge that is formed explicitly and implicitly (tacit). The ideal KM is conducted formally and rooted in the organizational structure, working in large organizations/companies where technology is the main support. Unlike large companies, the business process in SMEs (batik industry in West Java) is performed traditionally. In this process, the owner is concurrently the leader/manager, and strategic and tactical decision making is in the owner’s position. Moreover, the organizational structure is generally consistent and centralized, thus running informally. However, SMEs cannot practice knowledge management due to incompliance. SMEs can perform KM by adopting knowledge management patterns that are practiced in large companies. KM in the next development will form innovative work behavior, which will have an impact on managerial performance. By contrast, knowledge management does not directly affect managerial performance but

influences such performance through innovative behavior. The hypothesis testing results can be summarized as follows.

Table 10. Summary of Hypothesis Testing Results

Variable Relationships	Original Sample	Mean Sample	Standard Deviation	T-Statistic	P-Value	Conclusion
KM → IB	0.726	0.728	0.060	12.084	0.000	Accept the alternative hypothesis
IB → MP	0.293	0.313	0.109	2.677	0.008	Accept the alternative hypothesis
KM → MP	0.022	0.004	0.085	0.256 (<1.65)	0.798 (>0.05)	Do not accept the alternative Hypothesis
KM → IB → MP	0.213	0.228	0.081	2.612	0.009	Accept the alternative hypothesis

Table 10 shows that all the hypothesis testing results accept alternative hypotheses, except for the hypothesis of the effect of knowledge management on managerial performance. This hypothesis does not support the prediction of the direct effect of knowledge management on managerial performance.

Discussion

Knowledge Management for Innovative Behavior Formation

Table 5 presents the results of statistical testing, which show a significant influence of knowledge management on innovative behavior of 0.726; this result is significant at t-statistic 12.984 > t-table 1.65. Thus, the application of knowledge management in the batik industry will have an impact on the formation of innovative behavior of batik industry owners in West Java. The research findings reveal that knowledge management has been generally applied even though most of the terms of knowledge dissemination and knowledge organization are still at the implicit/tacit level. The application of knowledge management as a whole is conducted informally and in kinship. The activities of the batik industry owners considering knowledge management help in the formation of new ideas.

Innovative Behavior toward Forming Managerial Performance

Statistical testing (Figure 4) shows an effect of innovative behavior of 29.3% on managerial performance, and the t-statistic is 2.677 > t-table 1.65 (Table 6). This result indicates that the application of the innovative behavior variable has an impact on the formation of managerial performance of the batik industry owner in West Java. As described in the previous chapters and subsections, the application of innovative behavior is translated into dimensions of idea generation and implementation. The application of the innovative behavior variables affects the views and understanding and the application of the batik industry owners considering the performance of managerial tasks. These tasks are translated into functions of planning, organizing, implementing, and controlling.

Knowledge Management for Managerial Performance Formation and through Innovative Behavior

Figure 5 shows the analysis results in the influence of knowledge management on managerial performance (0.022) with a t-statistic of $0.256 < t\text{-table} = 1.65$ and P = value $0.798 > \text{significance level } (\alpha = 0.05)$; thus, the hypothesis is rejected. Through hypothesis testing (Figure 6), the influence of knowledge management on managerial performance through innovative behavior is 21.30 % with a t-statistic value of $2.612 > 1.65$ and a P-value of $0.009 < 0.05$; thus, the hypothesis is accepted.

Through the mediation effect (Table 8), the influence of knowledge management on managerial performance through innovative behavior results in 0.213 with insignificant test results (< 0.05), thus demonstrating full mediation. This finding shows that the application of knowledge management will increase managerial performance effectively if mediated by innovative behavior. These results indicate that the implementation of knowledge management activities in the batik industry in West Java will not affect managerial performance if unaccompanied by other activities in an organized manner. Thus, knowledge management in the West Java batik industry, which is mostly in terms of knowledge dissemination, remains in the form of tacit knowledge, and definite guidelines are unavailable. By contrast, the process of making batik products is in handmade form and requires accuracy. Therefore, the owner (manager) must take full control of the production process. This phenomenon affects the quality and quantity of the product and its impact on underdeveloped managerial performance. Supporting activities, such as the formation of innovative behavior, are necessary to overcome this problem.

CONCLUSIONS AND RECOMMENDATIONS

Conclusion

The results showed how the owners of the medium-scale batik industry in West Java run their business considering knowledge management, innovative behavior, and managerial performance. The qualitative data analysis shows that the activities directed at the dimensions and indicators of knowledge management, innovative behavior, and managerial performance all support and strengthen the proposed quantitative data. Knowledge management activities occur traditionally and are informally rooted in implicit knowledge (tacit). No official procedure in the form of a blueprint is available as a working guideline, written data storage is unavailable, and other formal organization of data is absent. Technically, the production process, starting from the drawing/motif/design to finishing, is based on the intended pattern and flows naturally. The idea of creating motives and the production process are based on experience and obtained from parents, passing these ideas down from generation to generation. Overall, knowledge management elicits innovative behavior. Managerial activities show that management functions are generally implemented in a tactical, simple, informal, and familial manner. The company operation occurs in synergy, which is supported by a harmonious relationship between employees and industry owners (managers).

Through the mediation effect, this analysis produces innovative behavior to mediate the influence of knowledge management on managerial performance completely. Thus, if the owners of the medium-scale batik industry in West Java if can acquire, share, organize, and respond to knowledge appropriately, then

they can improve their planning, organizing, implementation, and supervisory functions effectively. Such an improvement leads to the formation of activities and the emergence of new ideas and their implementation.

Suggestion

Academic Suggestion

The results of this study are expected to help researchers in comprehensively exploring knowledge management, innovative behavior, and managerial performance by developing dimensions and/or indicators. The results of this exploration are expected to complement data on batik, including matters related to batik knowledge, behaviors that lead to the formation of product innovation, resource empowerment, and other problems that result in the creation of managerial performance in the batik industry, particularly in West Java.

Practical Suggestion

- 1) For batik entrepreneurs:
 - a. Knowledge management should be implemented with an emphasis on the importance of disseminating and organizing knowledge explicitly. Thus, knowledge of the art and culture of batik can be properly documented.
 - b. Innovative behavior that leads to the creation of new products (innovation) through the creation of new ideas/procedures and their implementation should be continuously developed. However, such creation should still be rooted in the characteristics of the basic design (standard) because Indonesian batik is known for its uniqueness.
 - c. Managerial performance must be improved by developing functions/dimensions, especially in making plans concerning business goals and targets, inventory, and clear resource allocation; employee empowerment through training and other informal education.
- 2) The government, the West Java Batik Foundation (JBF), and the Indonesian Batik Foundation (IBF) must regularly collect information on batik activities. Therefore, mapping considering business scale grouping and performing further research can be easily conducted. Moreover, guidance to batik entrepreneurs can be easily provided on the basis of their business classifications and characteristics to increase the growth and development of business volume. The Government of West Java and the central government are also obliged to give advice and direction to the public to appreciate and love batik via suggestions to increase the intensity of the use of batik products. This approach can help increase the income of batik product producers, consequently improving the national economy.

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