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ORIGINAL

The Influence of Technology-Based Leadership Training for Women MSME Owners

El efecto de la capacitación en liderazgo basada en tecnología en las mujeres propietarias de MIPYME

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ABSTRACT

MSMEs can strengthen Indonesia's prosperity, by creating added value and strengthening strategic economic sectors. Training for women business owners' skills needs to be supported by external factors that also significantly contribute to the development of business strategies. Business leaders, especially women leaders, play an essential role in bringing their businesses towards the desired goals. However, Women entrepreneurs are considered inferior in leading businesses because of their low abilities compared to men. Women entrepreneurs do not have access to leadership training, use current technology, and are uncertain about making MSME business decisions. The purpose of the study was to determine the relationship between the independent variable (leadership training), the dependent variable (business performance, digital competence, and business decision-making), and the moderating variable (business model innovation). This study involved 45 women entrepreneurs in East Java. Sampling showed a diverse demographic distribution in several districts and cities. The limited number of respondents is because the number of women entrepreneurs in Indonesia is only around 40 %.This study uses Partial Least Squares Structural Equation Modeling (PLS-SEM) analysis to determine the relationship between those variables. The study's results showed that leadership training positively and significantly affected business performance, digital competence, and business decision-making. The moderating variable, business model innovation, has an impact on the variables that have been raised previously. This study impacts Women leadership development through training so that Women entrepreneurs can improve sustainable business performance and strategies.

Keywords: Leadership; Business Performance; Digital Competence; Business Decision-Making; Business Model.

RESUMEN

Las MIPYME pueden fortalecer la prosperidad de Indonesia, creando valor agregado y fortaleciendo sectores económicos estratégicos. La capacitación de las habilidades de las mujeres empresarias debe estar respaldada por factores externos que también contribuyan significativamente al desarrollo de estrategias comerciales. Los líderes empresariales, especialmente las mujeres líderes, desempeñan un papel esencial para llevar sus negocios hacia las metas deseadas. Sin embargo, las mujeres empresarias son consideradas inferiores en la dirección de empresas debido a sus bajas habilidades en comparación con los hombres. Las mujeres

empresarias no tienen acceso a capacitación en liderazgo, utilizan la tecnología actual y no están seguras de tomar decisiones comerciales para las MIPYME. El propósito del estudio fue determinar la relación entre la variable independiente (capacitación en liderazgo), la variable dependiente (desempeño empresarial, competencia digital y toma de decisiones comerciales) y la variable moderadora (innovación del modelo comercial). Este estudio involucró a 45 mujeres empresarias en Java Oriental. El muestreo mostró una distribución demográfica diversa en varios distritos y ciudades. El número limitado de encuestados se debe a que el número de mujeres empresarias en Indonesia es solo de alrededor del 40 %. Este estudio utiliza el análisis de modelado de ecuaciones estructurales de mínimos cuadrados parciales (PLS-SEM) para determinar la relación entre esas variables. Los resultados del estudio muestran que la formación en liderazgo afecta positiva y significativamente el desempeño empresarial, la competencia digital y la toma de decisiones empresariales. La variable moderadora, la innovación en el modelo de negocio, tiene un impacto en las variables que se han planteado anteriormente. Este estudio incide en el desarrollo del liderazgo de las mujeres a través de la formación para que las mujeres emprendedoras puedan mejorar el desempeño y las estrategias empresariales sostenibles.

Palabras clave: Liderazgo; Rendimiento Empresarial; Competencia Digital; Toma de Decisiones Empresariales; Modelo de Negocio.

INTRODUCTION

Small businesses are one of the government's ways to increase economic surplus and sustainable economic development.[1] The government through related institutions has provided a lot of access in the form of opening mentoring programs for (Small and Medium Enterprises) MSMEs who want to develop.[2] MSMEs can strengthen Indonesia's prosperity, by creating added value and strengthening strategic economic sectors. Economic is resilience, based on the people encourages people to take part in increasing economic turnover.[3] In addition, MSMEs are a source of innovation and creativity in facing challenges and taking advantage of opportunities in a changing economy.[4] In Indonesia, men dominate the ownership of MSME are actively involved and plays essentials role in MSMEs. However, nowadays there are trends that women is occurring where women are increasingly actively involved and playing an essential role in MSMEs.

Women business owners are increasingly crucial in achieving sustainable development goals.[5] Women entrepreneurs contribute to opening up opportunities for other Women workers to gain access to employment and the business world.[6] The role of women in MSMEs can provide other insights into consumer-oriented business strategies and positively impact business performance.[7] Women entrepreneurs must have the same access as male entrepreneurs in seeking capital, self-development, adequate infrastructure, and strengthening business personal branding.[8] However, it is undeniable that Women entrepreneurs have not been able to compete in the business world; only a few Women entrepreneurs have finally succeeded.

Based on the results of the study [9,10,11,12] shows that training related to strengthening leadership skills that have existed so far only prioritizes the aspect of business owners and is the responsibility of the employee management section. Leadership-based business training does not involve the role of employees who are, in fact, business actors in the field, so employees do not get a clear picture of the policies taken by the owner that are to be implemented directly in the business world. Employees are absent at every regulation and new policy taken by business actors. Existing business training has not emphasized real case studies that can be elaborated with strategic actions that can be taken. Based on the research team's analysis, developing new business strategies has not provided many innovations that directly answer problems in the field so that training can develop ideas relevant to existing company goals.

Training for women business owners' skills needs to be supported by external factors that also significantly contribute to the development of business strategies. The development of business model innovation can capture a business's overall needs, starting from providing raw materials, distribution, marketing, production, supply chain, and business risk management.[13] Developing a business model based on sustainable innovation can help women entrepreneurs create business strategies that align with market needs. A business model based on sustainable innovation can picture marketing strategies, product development, and human resource management and add more value to existing products.[14] The involvement of external parties will also be very influential in business development in the future. The direction of existing research seeks to optimize the role outside business owners, namely business model innovation, in encouraging internal leadership aspects already possessed by women MSME actors. Business model innovation answers the challenges of businesses that must be agile with technological change and disruption.[15]

The novelty of this study is that the results present three main variables to support the leadership training process: business performance, digital competence, and business decision-making. Business performance shows

the resilience of business actors in facing business competition. Digital competence plays a role in adapting digital technology in the era of global market. Decision-making skills are primary need in solving business problems, and they are necessary for the best policy results that follow the business's long-term needs. The implementation of leadership training for business actors can accelerate the ability of regional MSMEs in East Java to develop more sustainable businesses. Research on leadership training and business model innovation has been widely produced nowadays. However, this does not prevent business model innovation that is more relevant to small business actors. Collaboration between internal and external factors of the company is supported by business performance measurements, digital competence, and essential business decision-making to contribute positively to business development.[16]

Leadership in the era of disruption requires business actors are able to adapt to changing market demands. However, the local wisdom aspect of MSMEs located in village must be strengthened, and modern business strategies must be collaborated to increase business stability. Women entrepreneurs must have ideal leadership to transfer digital business knowledge with cultural values and local business wisdom. A business's performance significantly impacts the sustainability of the local business ecosystem and values. The direction of a new business must emphasize profitability and the values that business actors and their employees can own. digital competence contributes to the ability of business managers to run a business by utilizing digital technology, which is massively developed nowadays. Decision-making is the basis for making policies that preserver nature and use natural resources wisely. Existing policies can be adopted from local community practices to utilize and maintain local resources. The three aspects raised in business model innovation can improve the image and sustainability of the business.[17,18]

Training programs for women entrepreneurs are essentials to improve advanced leadership skills so that they are open to business challenges.[19] Training for women entrepreneurs can close the gap in knowledge and implementation in the field using digital technology to improve business strategies and the sustainability of businesses that compete globally.[20] Therefore, this study examines the effect of leadership training for women MSME owners in supporting the development of MSMEs in Indonesia.[21] This study looks at its impact on business performance, digital competence, and business decision-making with the development of business model innovation as a moderating variable. This study has several problem formulations. First, how does leadership training for women MSME owners impact business performance? Second, how does leadership training for women MSME owners impact digital competence? Third, how does leadership training for women MSME owners impact business decision-making? Finally, how does business model innovation play a role in leadership training for women MSME owners, business performance, digital competence, and business decision-making? These questions are designed to explore more detailed research.

This study provides a deeper understanding of the importance of leadership training for women MSME owners in improving business performance by developing practical leadership skills.[22] Women MSME owners will be able to make intelligent and timely decisions to improve business competitiveness and resilience. In addition, this study shows the importance of adopting innovation in business models as an approach that can generate competitive advantages for women MSMEs in an increasingly competitive market. The implications of this study are practical for women MSMEs in improving business competitiveness and contribute to policy makers in designing more effective support programs for the women MSME sector.[23]

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METHOD

Research Design

The design of this study is based on the Partial Least Squares Structural Equation Modeling. The research model is used to determine the relationship between leadership training, business performance, digital competence, business decision-making, and the development of business model innovation in the context of women-owned MSMEs. The PLS-SEM method provides a quantitative-based data overview so that researchers obtain an overview of the relationship between the selected variables. The relationship of moderation variables must be known for looking for correlations in existing research. The SEM-PLS method explains the relationship between MSME business performance and business model innovation as a moderation variable.

Sample and data collection

The research sample were taken from 45 Women MSME owners across several East Java regions. Sampling

showed a diverse demographic distribution in several districts and cities. The limited number of respondents is because the number of women entrepreneurs in Indonesia is only around 40 %. The research representative is safe to fill out a questionnaire developed by the researcher and validate the points raised. The questionnaire that has been developed covers aspects of leadership training, business performance, digital competence, decision-making, and business innovation. The results of the respondents' answers were analyzed to provide information related to the skill development of Women MSME actors in East Java and the impact directly felt by MSMEs, ranging from improving business performance, digital competence, and business decision-making.

Table 1. Variables, Dimensions, and Measurement Instruments

Variable	Dimension	Measurement	Previous Research or Questionnaires
Leadership Training for Women MSME Owners (X1)	Gender Identity	Equality of Opportunity	(24,25,26)
		Proponent of Work-Life and Personal-Life Balance	
		Anti-Discrimination Policy	
		Availability of Support and Resources	
	Communication Skills	Resource Usage	
		Community Engagement	
		Social Engagement	
	Adaptability	Strategic Flexibility	
		Responsibility for Change	
		Risk Capability	
Business Performance (Y1)	Financial Performance	Revenue Growth	(20,27,28)
		Profitability	
		Operational Efficiency	
	Business Growth	Market Penetration	
		Addition of Products or Services	
	Customer Satisfaction	Responsive to customer needs	
		Product/Service Quality	
		Customer Valuable Experience	
Digital Competency (Y2)	Technology Understanding	Understanding the Use of Tools and Applications	(29,30,31)
		Skills in Solving Technology Problems	
	Technical Skills	Skills in Managing Databases	
		Understanding Business Systems	
		Creativity in the Application of Technology	
	Adaptation to Technological Change	Speed of Adaptation	
		Opportunity Utilization	
		Flexibility	
Business Decision Making (Y3)	Risk Analysis Capabilities	Identify Potential Risks	(32,33,34)
		Risk Impact Evaluation	
		Risk Awareness	
	Ability to Manage Conflict	Regulatory Compliance	
		Acceptance by Stakeholders	
		Decision Transparency	
Business Model Innovation (Z1)	Value Proposition	Uniqueness of Values	(35,36,37)
		Relevance to Customer Needs	
		Price Compliance	
	Scalability	Income Diversification	
		Scale Efficiency	
		Operational Flexibility	
	Sustainability	Corporate Social Responsibility	
		Continuous Innovation	
		Resource Availability	

Data Analysis

The implementation of data analysis uses 2 stage methods, which are external and internal model

analysis—the use of external model analysis to determine the validity and reliability of constructs in measuring observational variables. The reliability of the research was assessed to determine how well the variables taken, represented the composition of the existing research. Researchers will evaluate the loading factors of each construct, composite reliability, and convergent validity in the analysis of the outer model. Research composite reliabilities provide consistent information in the constructs used. Convergent validation provides information related to the internal and external models, which provides more relevant information and the reliability of the research construct.[38]

The external analysis model can provide information about the relationship between the variables raised. Researchers can identify pathways between existing variables and know the strengths between existing variables. The moderating variable provides an overview of how effective the research model is from existing data. The research model will be analyzed for conformity with the data obtained.[39]

RESULTS

The results of the descriptive analysis of the questionnaire distributed to women MSME owners in East Java showed several significant findings related to the characteristics of the respondents. The characteristics of the respondents were explored related to aspects of age, education, number of employees, length of business, business location, and business sector which are presented in table 2 below:

Table 2. Research Respondent Data

Aspects	Categories	Values
Age	<30 years	12
	30-50 years	21
	>50 years	12
Level of Education	Elementary School/Equivalent	6
	Junior High School Graduates / Equivalent	6
	High School Graduates / Equivalent	12
	Diploma Graduates	6
	Bachelor's Graduates	15
Number of Employees	Do Not Have Employees	12
	1-5 Employees	18
	6-10 Employees	9
	More Than 10 Employees	6
Length of Business	<5 Years	6
	5-10 Years	21
	>10 Years	12
Business Sector	Service Sector	12
	Trade Sector	15
	Processing Industry Sector	12
	Other Sectors	6
Business Locations	Village Areas	21
	Urban Areas	24

Outer Model Test

The selected outer model will be tested to determine the factors through indicators that provide the measured data information—measurement of the relationship between existing variables with research indicators of how strong the variables are developed. A high loading factor value can interpret the measured construct, and the liner shows a better indicator value. The researcher measured the consistency between the indicators raised by looking at the composite reliability value of the research. A high value of dietary reliability strongly correlates with research indicators and constructs.[40]

Convergent Validity, Construct Validity, Cronbach's Alpha & Composite Reliability

The outer model of this study uses the initial stages related to the convergence validation test using the SEM-PLS method. The SEM-PLS method provides validity testing data from existing research variables. Research testing reinforces indicators that can know the construct consistently. This research will determine the correlation and significance of the data with the existing research structure. The evaluation of this study determines the research indicators selected to determine the efficient and effective construct. The validity of

the construct is evaluated by examining the values of Average Variance Extracted (AVE) and Composite Reliability (CR). AVE measurements can explain the indicators of an existing research construct by measuring how much variation it has. AVE gives a high value if the indicators in this study correlate with consistent construct values and have appropriate convergence. Composite reliability testing is done by knowing the composite reliability coefficient (CR) to determine the statistical size consistently and well. The research indicators have values between 0 and 1, showing a consistent value that is comprehensive and high.[41]

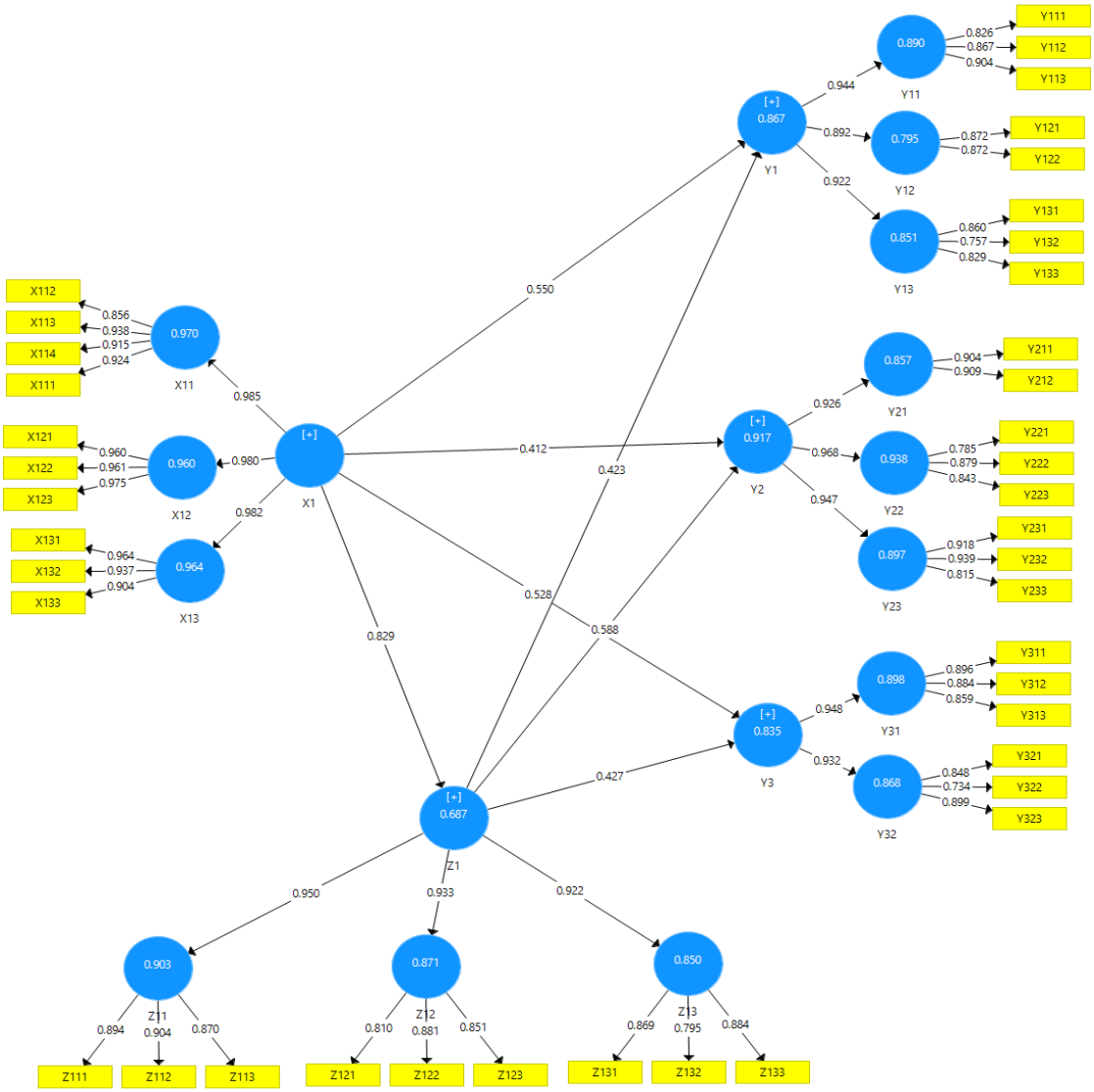

Figure 2. Model Outer Path Diagram

Table 3. Loading Factor, Average Variance Extracted (AVE), Cronbach's Alpha & Composite Reliability

Variable	Dimension	Item	Loading Value	AVE	Cronbach's Alpha	Composite Reliability	Information
Leadership Training for Women MSME Owners (X1)	-	-	-	0,842	0,979	0,982	Valid & Reliable
	Gender Identity	X11	0,985	0,826	0,929	0,950	Valid & Reliable
	Communication Skills	X12	0,980	0,932	0,964	0,976	Valid & Reliable
	Adaptability	X13	0,982	0,875	0,928	0,955	Valid & Reliable
Business Performance (Y1)	-	-	-	0,614	0,909	0,927	Valid & Reliable
	Financial Performance	Y11	0,944	0,751	0,833	0,900	Valid & Reliable
	Business Growth	Y12	0,892	0,761	0,685	0,864	Valid & Reliable
	Customer Satisfaction	Y13	0,922	0,666	0,748	0,857	
Digital Competency (Y2)	-	-	-	0,690	0,935	0,947	Valid & Reliable
	Technology Understanding	Y21	0,926	0,822	0,784	0,902	Valid & Reliable
	Technical Skills	Y22	0,968	0,700	0,784	0,875	Valid & Reliable
	Adaptation to Technological Change	Y23	0,947	0,796	0,870	0,921	Valid & Reliable

Business Decision Making (Y3)	-	-	-	0,647	0,890	0,916	Valid & Reliable
	Risk Analysis Capabilities	Y31	0,948	0,775	0,854	0,912	Valid & Reliable
	Ability to Manage Conflict	Y32	0,932	0,689	0,770	0,868	Valid & Reliable
Business Model Innovation (Z1)	-	-	-	0,650	0,932	0,943	Valid & Reliable
	Value Proposition	Z11	0,950	0,791	0,868	0,919	Valid & Reliable
	Scalability	Z12	0,933	0,719	0,804	0,884	Valid & Reliable
	Sustainability	Z13	0,922	0,723	0,807	0,887	Valid & Reliable

The PLS analysis showed that all constructs in this study had Cronbach alpha values >0,6 and composite >0,7. This indicates that these constructs can be considered reliable. Thus, it can be concluded that this research model shows good consistency and that the instruments used have been tested reliably.

Discriminant Validity

Discriminatory validity test testing provides more precise information in the research construction of the variables used. The Average Variance Extracted (AVE) will be compared to the value of each existing research construct with the value of the correlation square. The value of AVE will show a strong correlation between the cost and the existing research variables to show a good validity value. The Discriminatory Validity Test helps ensure that each construct can be clearly distinguished without overlap or confusion between constructs.[38]

Table 4. Discriminant Validity

	Leadership Training for Women MSME Owners	Business Performance	Digital Competency	Business Decision Making	Business Model Innovation
X1.1.1	0,913	0,841	0,804	0,837	0,720
X1.1.2	0,830	0,791	0,850	0,773	0,757
X1.1.3	0,913	0,812	0,830	0,785	0,787
X1.1.4	0,922	0,824	0,802	0,820	0,740
X1.2.1	0,945	0,804	0,805	0,814	0,772
X1.2.2	0,926	0,815	0,812	0,799	0,742
X1.2.3	0,967	0,855	0,865	0,845	0,779
X1.3.1	0,942	0,840	0,835	0,796	0,797
X1.3.2	0,949	0,839	0,835	0,795	0,776
X1.3.3	0,861	0,844	0,817	0,828	0,735
Y1.1.1	0,642	0,800	0,772	0,728	0,723
Y1.1.2	0,723	0,812	0,710	0,729	0,676
Y1.1.3	0,766	0,840	0,759	0,793	0,685
Y1.2.1	0,793	0,777	0,742	0,786	0,689
Y1.2.2	0,695	0,779	0,810	0,774	0,736
Y1.3.1	0,763	0,825	0,716	0,729	0,667
Y1.3.2	0,540	0,709	0,663	0,695	0,660
Y1.3.3	0,703	0,716	0,689	0,664	0,679
Y2.1.1	0,761	0,858	0,828	0,855	0,792
Y2.1.2	0,799	0,815	0,851	0,843	0,810
Y2.2.1	0,715	0,713	0,775	0,806	0,730
Y2.2.2	0,695	0,730	0,821	0,692	0,774
Y2.2.3	0,772	0,850	0,832	0,796	0,767
Y2.3.1	0,754	0,756	0,866	0,718	0,768
Y2.3.2	0,806	0,768	0,868	0,730	0,788
Y2.3.3	0,666	0,722	0,798	0,755	0,745
Y3.1.1	0,751	0,816	0,786	0,864	0,716
Y3.1.2	0,676	0,809	0,748	0,839	0,745
Y3.1.3	0,777	0,780	0,745	0,798	0,720
Y3.2.1	0,642	0,710	0,708	0,784	0,631
Y3.2.2	0,642	0,682	0,710	0,699	0,650
Y3.2.3	0,761	0,739	0,799	0,830	0,707
Z1.1.1	0,621	0,690	0,771	0,672	0,838
Z1.1.2	0,783	0,791	0,852	0,781	0,869
Z1.1.3	0,722	0,715	0,773	0,731	0,828
Z1.2.1	0,763	0,827	0,863	0,800	0,855
Z1.2.2	0,622	0,689	0,734	0,685	0,775

Z1.2.3	0,462	0,544	0,581	0,564	0,728
Z1.3.1	0,755	0,778	0,757	0,703	0,823
Z1.3.2	0,601	0,636	0,675	0,651	0,738
Z1.3.3	0,633	0,664	0,696	0,655	0,789

The table shows that the cross-loading value of each indicator shows a more significant contribution to the corresponding construct than other constructs. Therefore, in the context of this study, it can be concluded that the discriminant validity of the variables tested is quite valid.

2. Evaluate the Inner Model

Evaluation of the internal model will gain a deeper understanding of the relationship between variables in the context of this study. The results of the internal model evaluation will be the basis for concluding research findings, validating hypotheses, and providing relevant recommendations. Therefore, this stage of internal model evaluation is critical to ensure the quality and reliability of data analysis and research findings.

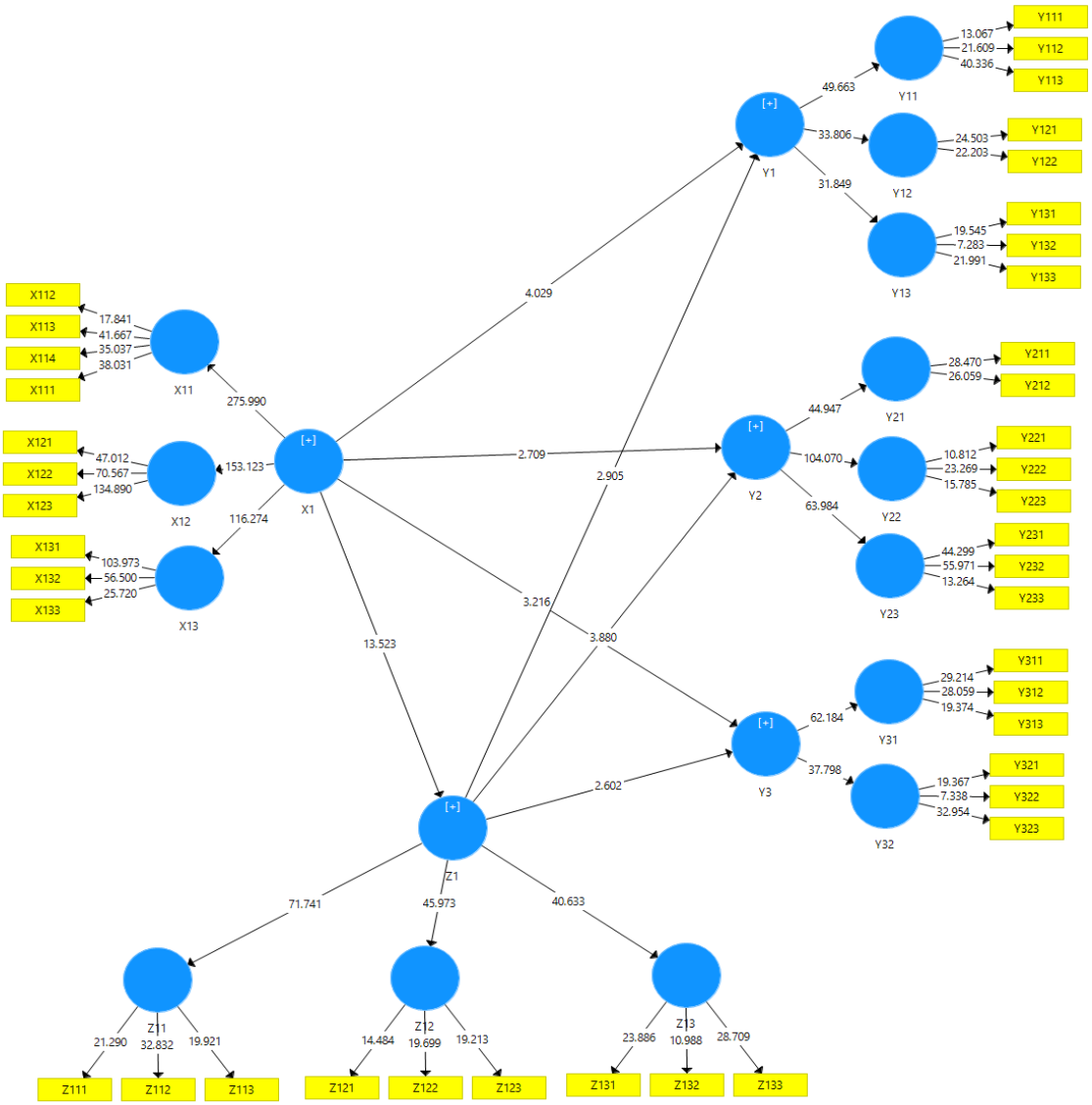

Figure 3. Inner Model Path Diagram

Coefficient of Determination

The measurement of the determination coefficient shows the value of the metrics and the research model through the existing research variables. The determinization coefficient shows variability with large values and a variable model independent of the existing research variables. The use of the SEM-PLS method provides an evaluation of the quality of the research model with the data that has been obtained. The determination coefficient has a value range between 0 to 1. Higher values indicate that the model's independent variables

effectively explain the variability of the dependent variables.

Table 5. R-Square

	R Square
Business Model Innovation	
1. Value Proposition	0,903
2. Scalability	0,871
3. Sustainability	0,850
Average	0,875
Business Performance	0,867
Digital Competency	0,917
Business Decision Making	0,835
Average	0,873

Based on the R-Square value, shown in the picture of the SMART PLS analysis results above, after multiplying by 100 %, the value of the coefficient of determination of the Innovative Training variable is 87,5 %, which means that it gets a direct influence from the independent variable directly. At the same time, variables outside the study explain the rest. In addition, the variables of business performance, digital competence, and business decision-making were influenced by this study by 87,3 %, while constructs outside this study influenced the rest.

Predictive Relevance

The predictive relevance approach can evaluate the model in determining the value of the variables raised. Q-Square through the following formula:

$Q^2 = 1 - (1 - R^2_1) \times (1 - R^2_2)$
$Q^2 = 1 - (1 - 0,875) \times (1 - 0,873)$
$Q^2 = 1 - (0,125) \times (0,127)$
$Q^2 = 1 - 0,016$
$Q^2 = 0,984$

Based on the q-square calculation above, it can be stated that the predictive relevance model reaches 0,984 or 98,4 %. This shows that the analysis has the appropriate predictive relevance.

Goodness of Fit

The Goodness of Fit value knows which model is most suitable for the research that has been developed. Existing assessments must show information with diverse data and follow existing research models. The Goodness of Fit value provides a good value, so the distribution of data variations is more diverse and provides more comprehensive information. The research will provide information in the search for data related to the research model that has a relationship between variables that correlate with the value of the research construct. The goodness of fit value can be known in the following calculations:

The value of goodness of fit can be known in the following calculation:

Goodness of fit = 0,812

These results show that the combined calculation in the structural measurement model has a value above 0,70, indicating that empirical data follows the model.

Hypothesis Testing

The next stage in hypothesis testing is to estimate the path coefficients assessed based on T-statistic values. The estimation shows the relationship of latent variables in the bootstrapping procedure. The measured item shows significance if the T-Statistic value exceeds 1,96 and the p-value is less than 0,05 at a significance level of 0,05 (5 %). The parameter coefficient indicates the direction of positive and negative influence on the initial sample and how much impact the independent variable has on the dependent. Here is a path coefficient that gives an idea of the value of T-Statistic.

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Table 6. Path Coefficients

	Original Sample	T Statistics	P Values
X1 -> Y1, Leadership Training for Women MSME Owners -> Business Performance	0,550	4,029	0,000
X1 -> Y2, Leadership Training for Women MSME Owners -> Digital Competencies	0,412	2,709	0,007
X1 -> Y3, Leadership Training for Women MSME Owners -> Business Decision Making	0,528	3,216	0,001
Z1 -> Y1, Business Model Innovation -> Business Performance	0,423	2,905	0,004
Z1 -> Y2, Business Model Innovation -> Digital Competence	0,588	3,880	0,000
Z1 -> Y3, Business Model Innovation -> Business Decision Making	0,427	2,602	0,010
X1 -> Z1 -> Y1, Leadership Training for Women MSME Owners -> Business Model Innovation -> Business Performance	0,351	2,816	0,005
X1 -> Z1 -> Y2, Leadership Training for Women MSME Owners -> Business Model Innovation -> Digital Competencies	0,487	3,513	0,000
X1 -> Z1 -> Y3, Leadership Training for Women MSME Owners -> Business Model Innovation -> Business Decision Making	0,354	2,493	0,013

DISCUSSION

The research sample of 45 women MSME owners is considered a good sample. The distribution of samples from respondents has covered all regions in East Java. The East Java region has represented socio-economic diversity from developed urban to rural and coastal areas. Existing research provides information about the reasonably diverse demographics of various respondents according to diverse needs. Existing research provides information about Women entrepreneurs with more diverse business resources. Entrepreneurs in urban areas have greater access to information and opportunities than entrepreneurs in rural areas. Women entrepreneurs in villages experience difficulties developing their businesses, accessing funding, and developing personal skills.[42] Sampling through the purposive sampling method focuses on essential variables that support the research, including age, type of business, background, and economic circumstances, which strengthen the validity of the data. Purposive sampling is very relevant for research with a specific target and the research objectives to be adapted, are respondents who own MSMEs from various backgrounds.[43] In addition, this lack of respondents is because the number of women business owners in Indonesia is only around 40 %. Strategic considerations were taken to determine 45 respondents of women MSME owners in East Java. 45 respondents were able to represent demographic variations and business backgrounds. This study used a purposive sampling method approach. 45 respondents were sufficient to determine the general pattern in efforts to empower women MSME owners. Based on data from the regional secretary of East Java Province, there are 9,7 million MSMEs in East Java. However, women MSME owners are only 40 % of the total. The role of women is still relatively small in contributing to the development of MSMEs in East Java. Therefore, MSME training as an effort to empower women plays a role in improving the local economy. Previous research data shows that only 30-40 % of entrepreneurs in Indonesia are women. Men still dominate the business world, so gender inequality exists.[44] Similar data found at the global level shows that only one-third of the total Women gender entrepreneurs.[6] One factor supporting this phenomenon is the double burden of married women having to be responsible as housewives and business managers.[8]

First, the analysis results show a positive and significant influence of leadership training for women MSME owners on business performance. A parameter coefficient of 0,550 indicates that the higher the quality of leadership training received by Women MSME owners, the higher the business performance achieved. This suggests that leadership training has a vital role in increasing the effectiveness and efficiency of women MSME owners in managing their businesses. As such, these results provide strong empirical evidence of the importance of investing in leadership training for women MSME owners to improve business performance. Previous research has strongly supported the finding that leadership training positively influences business performance. Existing research highlights the importance of a three-way interaction between visionary leadership, innovative leadership mindsets, and business leadership approaches in supporting organizational sustainable development.[45] Other research shows the importance of leader support in fostering a culture of innovation in the food industry in Thailand in facing competition in the modern food market.[46] This finding aligns with other research, namely that transformational leadership improves worker performance by fostering innovative work behavior and organizational commitment.[47]

Second, the results of the analysis show a positive and significant influence between leadership training for women MSME owners and digital competencies. The parameter coefficient of 0,412 shows that the better the quality of leadership training received by Women MSME owners, the higher their level of digital competence. This indicates that leadership training improves the leadership skills of women MSME owners and contributes to increasing the ability to utilize digital technology to manage businesses more efficiently and effectively. There

have been several previous studies that support the finding that leadership training has a positive influence on the development of digital competencies.

Existing research provides more information that MSMEs have low competence in access to product digitalization, innovation, and broader customer search.[48] Existing research data shows that technology in this era of disruption can create products that are more relevant to customer needs and can improve work efficiency in terms of sustainable business quality management.[49] The development of competencies in innovations carried out by women business actors in the creative industry in strengthening MSME products can compete in the global market. It can increase the competitiveness of local MSMEs.[50]

Third, the analysis results show that leadership training for women MSME owners positively and significantly influences business decision-making. A parameter coefficient of 0,528 indicates that the higher the quality of leadership training received by Women MSME owners, the better the ability to make business decisions. There have been several previous studies that support the finding that leadership training has a positive influence on business decision-making. Research demonstrating leadership effectiveness in the context of higher education in Ethiopia highlights the importance of considering academic leaders to achieve gender equality and decision-making accuracy.[51] In addition, women's decision-making using technology can contribute to managerial practices, innovation, and the AI industry in digital transformation.[52] Other studies show that the influence of developing cultures also sometimes hinders women leaders in managing businesses and projects, so open innovation is needed to support decision-making in a multicultural environment.[53]

Fourth, the statistical analysis results were carried out, and it was proven that business model innovation has a positive and significant influence on business performance. A parameter coefficient value of 0,423 indicates that improving the quality of business model innovation will improve overall business performance. These results are also supported by significant T-statistics (2,905) and p-values lower than the established alpha level (0,004 < 0,05), indicating that these findings could not have been the result of mere chance. Several previous studies support the conclusion that innovative training positively affects MSME business performance.

The development of a circular economy model with a fit-based technology approach shows a positive contribution to the growth of the circular economy. The circular economy model is closely related to the technical, social, economic, and environmental aspects of sustainability.[54] In addition, research related to business models (BM-LCA) is a breakthrough for MSMEs in marketing innovative products by measuring business optimization that cares about the environment.[55] In addition, this study applies social media-based business models and effective business process performance at the SME level. It proposes a conceptual model focusing on the proportion of Task-Technology Fit.[56]

Fifth, the research data shows a digital competency 0,588, representing the parameter efficiency value. Digital competencies are strongly correlated with the quality of business innovations that MSMEs have developed. Existing research positively correlates with developing more efficient digital technology, and business models are crucial to business success. Implementing sustainable, innovative business models is essential for women entrepreneurs in running sustainable businesses. Business actors must have skills in reading opportunities, collecting data, analyzing data, using digital technology, and adapting to the ever-evolving business environment. Innovative business models will encourage MSMEs to remain relevant to the development of digital technology. The results of existing research align with the development of digital innovation in the manufacturing industry, which can mediate other research variables ranging from the capacity of labor absorption to the agility of the business operating system.[57] Existing research shows the implementation of open innovation in business models to develop superior performance in a sustainable business environment. New insights into the roles and competencies needed by business leaders in driving digital transformation.[58] In addition, research on radical changes in technology development through circular business model innovation can strengthen ecological innovation and dynamic capabilities in the digital transition from linear to circular business models.[59]

Sixth, decision-making positively correlates with the quality of business model innovation development for MSME actors. The research data shows that the parameter coefficient value of 0,427 is relevant in sustainable business decision-making and business model innovations that align with the needs of target customers. Existing research data shows that the ability to meet the needs of business actors positively impacts the process of developing business model innovation with an approach to adding value to products, marketing strategies, and sustainable business operations. This research is a strong basis for business decisions and innovations in MSMEs based on local wisdom. The results of this study also follow the results of data from several previous studies, namely the importance of innovative training for women MSME actors and the ability to make more strategic business decisions. Research shows that decision-making processes among business managers who use comprehensive business models effectively optimize demand response programs for energy management —research on visionary leadership in decision-making in fostering a culture of innovation ecosystems in IT companies. Research on strategic corporate decision-making is significantly influenced by the characteristics and prepared long-term plans.[60] In addition, quality decision-makers need skills and emotional intelligence to open up opportunities for innovation in developing business models.[61]

Seventh, the development of business innovation models has proven accurate in mediating the relationship between the variables raised and relevant to continuous leadership training. The data on the value of the parameter coefficient with values of 0,351, 0,487, and 0,354 showed positive results, namely, leadership training positively correlated with business performance, digital competence, and decision-making. Developing innovative training for MSME actors is very important and correlates with improving business operation performance. Women MSME actors must always be adaptive to technological changes in the digital era and look at business competition by looking at new and more promising opportunities. The results of this study are linear, as are several existing studies on the urgency and impact of innovative training that encourages business cooperation and optimization of management skills in MSMEs. These results align with several studies highlighting the mediating role of innovative training in improving business performance and managerial capabilities among MSMEs. Research on directive leadership tends to support small-scale business model innovation to enter foreign markets more quickly while empowering leadership is better suited to developing large-scale business model innovation.[37] Other studies have found that innovative business models and leadership development encourage car companies to overcome operational problems and provide more accessible services to users.[62] The development of open innovation is very relevant to the development of a company's business direction. Agile companies have a business model oriented to sustainable business strategies following the company's vision and mission. Leadership owned by Women MSME actors has an essential role in team development in a company, which impacts improving collaboration and performance. MSMEs must adopt business innovations that follow the culture and needs of customers.[63]

Limitations and future research

The impact of this research needs to embrace public institutions, village governments, and MSME communities in the process of integrating innovative training ecosystems. Innovative training allows women MSE actors to be empowered and increase their potential. Thus, women MSMEs can access holistic training, which enhances leadership skills and digital competencies and encourages innovation in business model development. In addition, awareness of the limitations of technology is essential, and efforts must be made to ensure that training and access to technology platforms can be provided inclusively for women MSMEs. By being well integrated, training and technology development can be vital in advancing women's MSMEs, enabling them to compete in an increasingly digital and complex market. This will improve the quality of human resources (HR) and inclusive economic growth at the local and regional levels.

CONCLUSION

Leadership training for MSME actors is essential in improving their business management skills. Three aspects of business significantly influence business success, including business performance, digital competence, and business decision-making, which are moderated by the development of business model innovations in the East Java area. The results show that the development of business innovation models has proven to be accurate in mediating the relationship between the variables raised and relevant to continuous leadership training. The data on the value of the parameter coefficient with values of 0,351, 0,487, and 0,354 showed positive results, namely, leadership training positively correlated with business performance, digital competence, and decision-making. This research has practical implications, namely the urgency of implementing innovative training in developing the skills of women MSME actors. Current training is more conventional and theoretical, but there needs to be a transformation in technology following existing business needs. However, this research has only been implemented in the East Java area, so it needs to be implemented in various other regions. Future research needs to expand the reach of innovative training to several other regions and a more significant number of respondents to provide more general and holistic data in creating a sustainable MSME ecosystem.

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CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

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