

# Resource Utilization, Innovation, and MSME Performance: A Circular Economy Perspective

Suci Utami<sup>1</sup>, Eka Siskawati<sup>2</sup>, Nurul Fauzi<sup>3</sup>

<sup>1, 2, 3</sup>Department of accounting, Politeknik Negeri Padang, Padang, Indonesia

Corresponding author: Suci Utami

Corresponding email: [Suciutami935@gmail.com](mailto:Suciutami935@gmail.com)

## ARTICLE INFO

### Article history:

Received 02 November 2024

Revised 17 November 2024

Accepted 27 November 2024

Available Online 03 December 2024

### Keywords:

MSME Performance, Resource Utilization, Innovation, Competitive Advantage, Circular Economy

### Cite as:

Utami, S., Siskawati, E., & Fauzi, N. (2024). Resource Utilization, Innovation, and MSME Performance: A Circular Economy Perspective. *Economics, Business, Accounting & Society Review*, 3(3), 217–228.

<https://doi.org/10.55980/ebasr.v3i3.154>

## ABSTRACT

Micro, Small, and Medium Enterprises (MSMEs) are critical economic growth and innovation drivers, particularly in emerging economies like Indonesia. However, they face persistent challenges such as limited resources, low innovation capacity, and growing pressure to meet environmental sustainability standards. This study investigates the impact of circular economy (CE) practices—specifically resource utilization and innovation & learning—on the business and socio-environmental Performance of MSMEs in Padang City, Indonesia. Drawing upon the Natural Resource-Based View (NRBV), the study posits that sustainable resource management and organizational learning can serve as strategic capabilities for long-term competitive advantage. A quantitative approach using Structural Equation Modeling–Partial Least Squares (SEM-PLS) was employed, with data collected from 70 MSMEs via an online questionnaire. The results reveal that resource utilization and innovation & learning significantly and positively affect business success and social-environmental Performance. These findings underscore the importance of integrating sustainability-oriented innovations and resource efficiency into MSME operations. The study contributes to the limited empirical research linking NRBV and CE practices within MSMEs in emerging markets. It offers practical implications for policy-makers and business development programs aiming to foster sustainable competitiveness and inclusive growth through innovation and environmental stewardship in the MSME sector.



This is an open-access article under the CC BY-SA License.

## 1. Introduction

Micro, Small, and Medium Enterprises (MSMEs) are widely recognized as key economic growth, employment, and innovation drivers, particularly in emerging economies. In Indonesia, MSMEs account for over 99% of total enterprises and contribute significantly to the national GDP. Despite their critical role, MSMEs face multifaceted challenges, including resource scarcity, limited innovation capacity, and increasing pressure to comply with environmental sustainability standards. (Endris & Kassegn, 2022) These key obstacles include restricted access to finance, poor infrastructure, lack of entrepreneurial skills, and an unfavourable business environment, which collectively constrain their productivity and long-term survival.

To address these constraints, the circular economy (CE) model has emerged as a strategic framework promoting sustainable resource management through reuse, recycling, and resource efficiency. (Abilakimova et al., 2025) The integration of circular economy principles is particularly relevant for MSMEs, which often struggle with resource limitations and environmental compliance. The theoretical underpinning of this research is grounded in the Natural Resource-Based View (NRBV), which posits that firms can achieve sustained competitive advantage through the strategic deployment of environmentally oriented capabilities and practices.

The integration of circular economy principles within MSME frameworks has been extensively discussed in recent sustainability literature, particularly in the context of large enterprises and developed economies. However, the application of these principles in micro and small enterprises in emerging markets remains underexplored. (Bakkar et al., 2023) emphasized the importance of CE adoption in Central European SMEs, demonstrating its influence on operational efficiency and competitiveness. (Ardhiyansyah et al., 2024) Sustainable innovation and resource efficiency are pivotal for African SMEs to thrive in environmentally conscious markets. This study highlights that business with strong innovation capabilities—driven by environmental orientation, green marketing, and technology adoption—can enhance their long-term sustainability and competitive edge in such evolving ecosystems.

In the Indonesian context, limited empirical studies have explored the intersection of CE and MSME Performance. While Zahid et al (2024) found that sustainability capabilities are linked to enhanced circular Performance, a lack of research operationalizes these capabilities into measurable constructs like resource utilization and innovation. Furthermore, Fahim & Mahadi (2022) provided a theoretical foundation linking the Natural Resource-Based View (NRBV) to environmental Performance. However, it also highlights that few empirical studies have utilized Structural Equation Modeling–Partial Least Squares (SEM-PLS) to test this relationship, particularly within the context of Indonesian MSMEs.

The circular economy is gaining prominence as a holistic approach to sustainable development, urging businesses to extract value from waste and meet sustainability goals (Sharma et al., 2020). Micro, small, and medium enterprises are recognized as key economic growth and innovation drivers, but they face challenges like resource scarcity and pressure to meet environmental standards (see Novriyandana et al., 2024). Penelitian sebelumnya telah mendiskusikan pentingnya circular economics terhadap kinerja MSME's (Sharma et al., 2021).

Wu (2017) explained that Implementing sustainability-oriented innovations is essential for enterprises to create a sustainable competitive advantage. The application of innovative technology is a form of commitment to sustainability (Saptono et al., 2024). This approach supports a balance of performance between profit growth, resource efficiency (Piispanen et al., 2020) and social responsibility. However, MSMEs are still resistant to the concept of sustainability due to limited information on the benefits of implementing circular economics. For example, research from (Bag et al., 2024) explained that a significant impediment to implementing CE models is a lack of information regarding the benefits. Disamping itu, the discussion about how they can implement circular economics to improve their sustainability performance is very limited.

This study examines how implementing circular economy practices—specifically resource utilization and innovation—affects the Performance of MSMEs in Padang City, Indonesia. Employing Structural Equation Modeling with the Partial Least Squares (SEM-PLS) approach, this research aims to provide empirical evidence on the causal relationships between resource efficiency, innovation and learning, and the dimensions of MSME Performance, both financial and non-financial.

### ***Natural Resource Based View (NRBV)***

The Natural Resource-Based View (NRBV) theory, first introduced by Wernelfelt (1984), explains how companies can achieve competitive advantage through resource utilization to produce environmentally friendly products. Agustin & Satrianto (2024) The Natural Resource-Based View (NRBV) is a theoretical framework that extends the resource-based view by emphasizing how a firm's resources and capabilities related to the natural environment can be a source of sustained competitive advantage. It focuses on environmental strategies such as pollution prevention, product stewardship, and sustainable development as critical pathways to enhance firm Performance and long-term viability. This theory emphasizes the importance of a firm's resources and capabilities as

the basis of a firm's competitiveness and Performance. The Natural Resource-Based View (NRBV) framework includes three central components: pollution prevention, product responsibility, and sustainable development. These pillars represent essential objectives for firms to enhance their environmental Performance while gaining a competitive advantage (Javeed et al., 2023).

In the context of circular economy practices, NRBV is relevant as it promotes resource efficiency and sustainability. Through innovation, inventory management, and continuous learning, MSMEs can reduce waste, maximize resource recovery, and improve social and environmental Performance. Thus, NRBV provides a strong theoretical framework to understand how circular economy practices can give a competitive advantage to MSMEs through resource efficiency and sustainability. By utilizing the natural resource-based view (NRBV), it becomes clear that circular economy practices offer MSMEs a pathway to competitive advantage. This advantage stems from the more efficient use of resources and the adoption of sustainable methods (Cheng et al., 2023).

### **Resource Utilization**

Resource utilization is efficiently managing raw materials, energy, and labour to maximize output while minimizing costs and environmental impacts. Jackson (2020) Identifying the economic optimum is important for all CCS projects; minimizing energy consumption is also important because it corresponds to resource efficiency in fossil-fuel-based projects. In the context of the circular economy, this includes strategies such as product innovation, energy efficiency, and optimal inventory management. This approach enables MSMEs to increase productivity, reduce waste, and strengthen competitiveness. MSMEs can increase revenue, profit margin, and environmental sustainability with better operational efficiency.

### **Innovation and Learning**

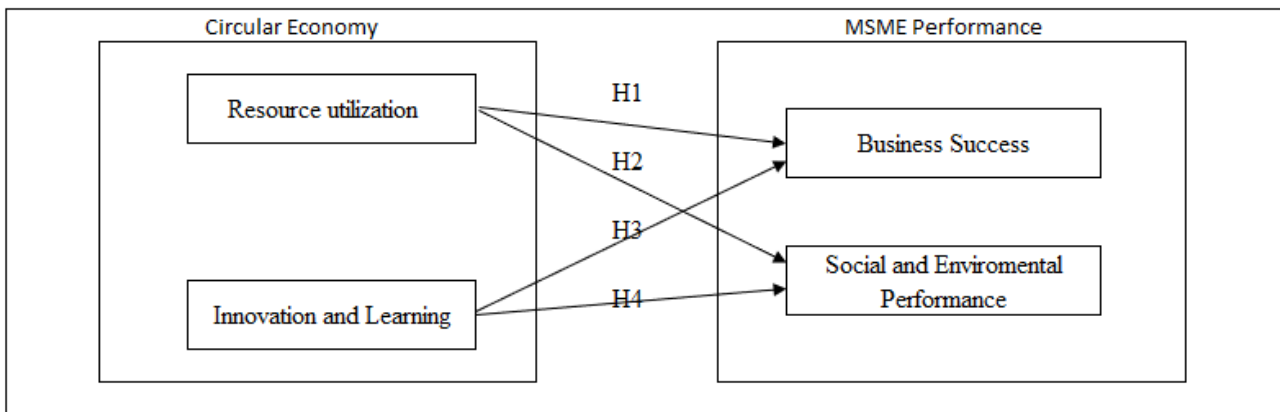
Innovation and learning are essential elements for MSMEs to adapt and thrive (Basri et al., 2023). Innovation includes introducing new ideas and products, while learning involves acquiring knowledge to improve Performance (Stefania, 2024). These processes support the development of efficient and adaptive strategies, enabling MSMEs to deal with resource limitations and changes in the business environment. With continuous learning, MSMEs can generate relevant innovations to improve competitiveness and operational efficiency. These innovations can improve competitiveness and operational Performance (Cuero-Acosta et al., 2023).

### **Business Success**

Business success reflects achieving business objectives through financial indicators, such as revenue growth and profit margins, and non-financial indicators, such as competitive advantage. In the context of a circular economy, efficient resource management practices can reduce costs, create environmentally friendly product innovations, and improve MSME competitiveness. Within a circular economy framework, MSMEs can lower expenses and boost their competitive edge through efficient resource management (Derhab & Elkhwesky, 2023). These successes demonstrate the ability of MSMEs to grow sustainably while better managing environmental impacts.

### **Social and Environmental Performance**

Social and environmental Performance reflects the positive impact of MSMEs on society and ecosystems. (Angeles et al., 2022) This positive impact is seen in their social and environmental Performance. Social Performance includes employee welfare, community contributions, and ethical compliance, while environmental Performance focuses on waste management, energy efficiency, and emissions reduction. By applying circular economy principles, MSMEs can reduce their ecological footprint, meet environmental regulations, and strengthen relationships with communities. This not only contributes to sustainability but also improves operational efficiency and corporate reputation.



**Figure 1. Research Framework**

H1: Resource Utilization has a positive influence on Business Success

H2: Resource Utilization has a positive influence on Social and Environmental Performance

H3: Innovation and learning have a positive influence on Business Success

H4: Innovation and Learning has a positive influence on Social and Environmental Performance

## **2. Methods**

This study adopts a quantitative, cross-sectional research design, utilizing a survey-based data collection method. A quantitative approach was selected to enable rigorous testing of hypothesized causal relationships between constructs associated with circular economy practices—namely, resource utilization, innovation and learning—and MSME Performance. The survey design facilitates the systematic collection of standardized data, thus enhancing the generalizability of the findings across the broader MSME population.

### **Population and Sampling Technique**

The population for this research comprises Micro, Small, and Medium Enterprises (MSMEs) registered with the Office of Cooperatives and MSMEs in Padang City, Indonesia. Given the wide geographical dispersion and logistical challenges of accessing MSMEs in various administrative regions, the study employed a non-probability convenience sampling technique. Although this method introduces limitations in representativeness, it is appropriate in contexts where accessibility constraints prevail and when the primary objective is exploratory theory validation.

The respondents were selected based on their willingness to participate and their eligibility criteria, namely active business operations and engagement in resource management practices relevant to circular economy principles. While acknowledging the potential sampling bias inherent in convenience sampling, appropriate analytical techniques were utilized to mitigate validity threats.

### **Sample Size Determination and Data Collection Procedure**

The minimum sample size was established in accordance with guidelines proposed by Hair and Alamer (2022), which recommend a ratio of at least 10 respondents per indicator when applying Structural Equation Modeling–Partial Least Squares (SEM-PLS). Given the complexity of the research model and the number of indicators involved, a target sample size of 70 respondents was deemed sufficient to achieve adequate statistical power for hypothesis testing and model validation.

Primary data were collected through a structured self-administered online questionnaire developed using the Google Forms platform. The use of an online distribution channel was particularly advantageous for enhancing response rates amidst mobility restrictions and promoting accessibility across different MSME clusters. Respondents were contacted via formal communications facilitated by the Office of Cooperatives and MSMEs, as well as through professional networks and social media channels.

The questionnaire was carefully designed based on established and validated measurement scales from prior empirical research. A pilot test was conducted with a subset of 10 MSMEs to assess the items' clarity, relevance, and reliability, resulting in minor revisions to the survey instrument before full deployment.

### Operationalization of Variables and Data Analysis Strategy

The study operationalizes key constructs as reflective latent variables, measured through multiple items on a five-point Likert scale ranging from 1 ("Strongly Disagree") to 5 ("Strongly Agree"). The primary constructs assessed include:

- a) Resource Utilization: Efficiency in managing raw materials, energy, and labour resources.
- b) Innovation and Learning: Organizational efforts in fostering innovation adoption, knowledge acquisition, and continuous improvement practices.
- c) Business Success: Indicators encompassing revenue growth, profitability, and competitive positioning.
- d) Social and Environmental Performance: Measures related to environmental impact mitigation, corporate social responsibility initiatives, and stakeholder engagement.

Each measurement item was carefully aligned with theoretical constructs derived from the Natural Resource-Based View (NRBV) and contemporary circular economy literature. Data analysis used Structural Equation Modeling-Partial Least Squares (SEM-PLS), leveraging SmartPLS software. The choice of SEM-PLS is justified by its robustness against non-normal data distributions, its suitability for complex model testing with relatively small samples, and its emphasis on prediction-oriented assessment (see Hair & Alamer, 2022).

#### The analytical procedure comprised the following stages:

- a) Measurement Model Evaluation: Assessment of construct reliability (Cronbach's Alpha, Composite Reliability), convergent validity (Average Variance Extracted [AVE]), and discriminant validity (Fornell-Larcker criterion).
- b) Model Fit Evaluation: Overall model fit was evaluated using the Standardized Root Mean Square Residual (SRMR) and Normed Fit Index (NFI), adhering to accepted thresholds (SRMR < 0.08; NFI > 0.80).
- c) Structural Model Assessment: Hypothesis testing was conducted by analyzing path coefficients, t-values, and p-values generated through a bootstrapping procedure with 5,000 subsamples. In addition, R-square ( $R^2$ ) values and effect size metrics ( $f^2$ ) were calculated to assess the explanatory power and substantive significance of the model relationships.

This research uses a quantitative approach with a survey method, and data collection is done through an online questionnaire through Google Forms. The population of this research is MSMEs in Padang City registered with the Office of Cooperatives and MSMEs. The reason for choosing the convenience sampling method is that the MSMEs in Padang City, which are the focus of the research, are spread across various regions, so with this method, researchers can more easily reach respondents willing to participate.

According to the recommendation, the sample size was set at 70 respondents (Hair & Alamer, 2022), which suggests a minimum sample size of 10 times the number of research indicators. Hypothesis testing was carried out using SEM-PLS with bootstrapping techniques to measure the significance of the relationship between variables. Data analysis uses inferential statistical methods based on Structural Equation Modeling (SEM) with the Partial Least Square (PLS) approach.

### 3. Results

The evaluation results conducted to validate and ensure the reliability of the data measurement instrument are presented in Figure 2. The validity analysis showed that the outer loading value for reflective research was >0.5, and each variable achieved an average variance extraction (AVE) value of >0.5.

**Table 1. Goodness Of Fit Test Results**

	Estimated Model
SRMR	0,040
NFI	0,849

The information presented from the model fit data results in Table 1 shows that the Standardized Root Mean Residual (SRMR) value is 0.040, which is <0.10. This result indicates a good fit between the observed model and the data. In addition, the test results show a Normal Fit

Index (NFI) of 0.849, which falls within the range of 0 to 1. This value is close to 1, indicating that the model has met the model fit eligibility criteria.

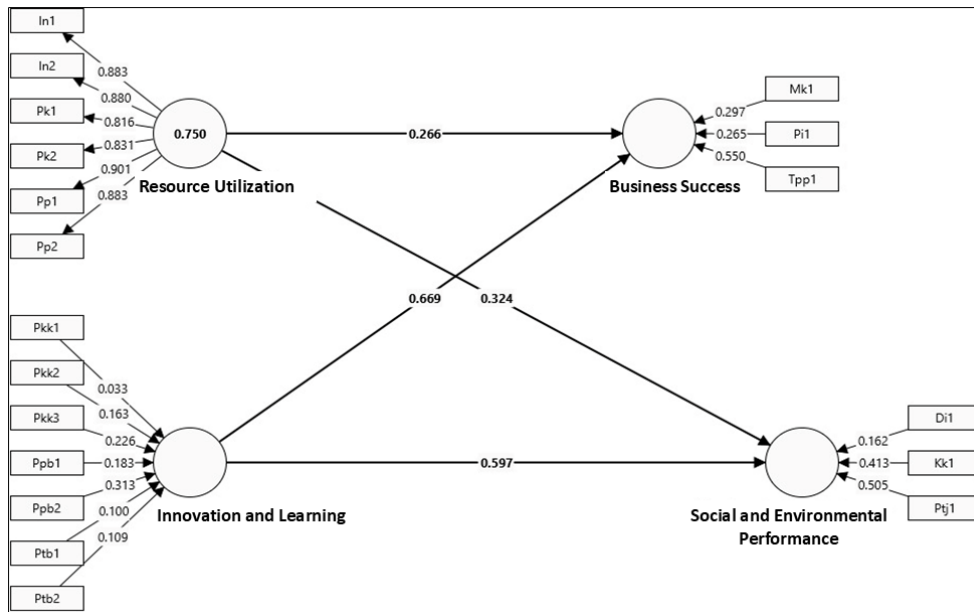


Figure 2. The convergent validity test uses the outer loading value

Furthermore, hypothesis testing is carried out to ensure the acceptance or rejection of the proposed hypothesis, with the significance criteria set at <0.05. The results of the direct effect hypothesis are described as follows:

Table 2. Hypothesis Test

Hypothesis	Std. Beta	Std. error	t-value	p-value	Confidence interval		R-square	F-square	Decision
					5.00%	95.00%			
H1	0.266	0.135	1.969	0.025	0.049	0.483	0.839	0.073	Supported
H2	0.324	0.175	1.848	0.032	0.049	0.611	-	0.091	Supported
H3	0.669	0.123	5.426	0.000	0.459	0.858	-	0.462	Supported
H4	0.597	0.168	3.561	0.000	0.315	0.849	0.809	0.31	Supported

Table 2. above shows that the critical t-value is 1.645, where the t level value is obtained from the significance level value of 0.05. so that when the t-value is above > 1.645, it can be concluded that the variable has a significant effect. From the table above, it can be seen that H1 and H2 have a t-value above 1.645. So, it can be concluded that resource utilization has a positive influence on business success, resource utilization has a positive impact on social and environmental Performance, innovation and learning have a positive influence on business success and innovation and learning have a positive influence on social and environmental Performance.

#### 4. Discussion

##### a) Positive Effect of Resource Utilization on Business Success

The statistical findings for Hypothesis 1 indicate that resource utilization has a significant positive effect on the business success of MSMEs, with a path coefficient ( $\beta$ ) of 0.266, a t-value of 1.969, and a p-value of 0.025. This result suggests that more efficient use of resources—such as raw materials, energy, labour, and time—contributes to higher business Performance outcomes. In practice, this manifests through improvements in inventory control, cost efficiency, streamlined production processes, and better allocation of human capital. These practices lead to increased

productivity, reduced waste, and more responsive customer service, ultimately driving revenue growth and profit margins.

Theoretically, this finding aligns with the Natural Resource-Based View (NRBV), which extends the traditional resource-based view by incorporating environmental considerations into the core of strategic resource management. NRBV posits that firms can achieve a sustained competitive advantage when they effectively manage resources in ways that are not only rare and inimitable but also environmentally sustainable. (Almada & Borges, 2018) The Natural Resource-Based View (NRBV) suggests companies can gain a lasting competitive edge. In the MSME context, resource utilization becomes a strategic capability when embedded in daily operations, supported by green innovation, and aligned with sustainability goals.

By leveraging efficient resource utilization, MSMEs in Padang City demonstrate their ability to convert environmental challenges into opportunities for business growth. Practices such as recycling materials, optimizing energy consumption, and minimizing production inefficiencies reduce operational costs and signal corporate responsibility to customers and stakeholders. These efforts enhance brand credibility, customer loyalty, and market differentiation, key components of business success in today's sustainability-driven economy. Therefore, consistent with NRBV, Integrated environmental stewardship into resource management allows MSMEs to create long-term value and improve competitiveness (Martínez-Peláez et al., 2024).

#### **b) Positive Effect of Resource Utilization on Social and Environmental Performance**

The empirical results for Hypothesis 2 indicate a statistically significant positive relationship between resource utilization and social and environmental Performance, with a path coefficient of 0.324, a t-value of 1.848, and a p-value of 0.032. This result suggests that efficient and strategic utilization of resources by MSMEs contributes to economic efficiency and broader social and environmental objectives (de Mattos et al., 2024). In other words, when MSMEs actively manage their inputs—such as raw materials, energy, and labour—in a responsible and sustainable manner, they are more likely to reduce negative environmental externalities and simultaneously generate positive social impacts.

From the perspective of the Natural Resource-Based View (NRBV), this finding is theoretically coherent. NRBV emphasizes that firms that effectively manage environmental resources—by minimizing waste, reducing emissions, and conserving inputs—can develop unique capabilities that serve as sources of competitive advantage. (Allioui & Mourdi, 2023) In this context, Resource utilization has implications beyond daily operations; it should also be considered a valuable strategic asset. MSMEs that embed eco-efficiency into their core processes enhance their environmental Performance by lowering their ecological footprint, reducing pollution, and complying with environmental regulations. Furthermore, such practices often result in innovative materials, processes, and products that are more sustainable and attractive to environmentally conscious consumers.

In parallel, the Corporate Social Responsibility (CSR) perspective further reinforces this relationship. (Gong et al., 2023) CSR theory suggests that companies have duties that extend beyond simply making a profit, including responsibilities towards society and the environment. Efficient resource utilization often leads to operational practices that are more inclusive, ethical, and community-focused. For instance, reduced resource waste can free up funds for community investment or employee development programs. Moreover, responsible sourcing and environmental consciousness contribute to enhanced stakeholder trust and legitimacy, vital for MSME resilience in dynamic socio-economic environments.

In the context of MSMEs in Padang City, this relationship demonstrates how resource utilization can catalyse responsible business conduct. Practices such as waste reduction, energy-saving initiatives, and sustainable supply chain choices reduce environmental harm and promote social welfare through improved working conditions, employee health and safety, and community engagement. These outcomes contribute directly to the firm's social license to operate and create a foundation for long-term sustainability. Thus, under the lenses of NRBV and CSR, efficient resource utilization is a critical enabler of integrated Performance—linking operational efficiency with ethical and sustainable impact (Alwageed et al., 2024).

### **c) Positive Effect of Innovation and Learning on Social and Environmental Performance**

The statistical findings for Hypothesis 3 reveal a strong and significant relationship between innovation and learning and business success, with a path coefficient of 0.669, a t-value of 5.426, and a p-value of 0.000. This indicates that MSMEs in Padang City that actively invest in innovation and foster a culture of continuous learning are more likely to experience notable improvements in business Performance—particularly in revenue growth, market share, customer satisfaction, and long-term competitiveness.

This relationship is well-supported by the Natural Resource-Based View (NRBV), which posits that organizational resources and capabilities related to environmental innovation can provide firms with a sustainable competitive advantage. (Abid et al., 2023) In the NRBV framework, innovation is not merely about developing new products or services but about transforming the firm's operational model in environmentally and economically superior ways. For MSMEs, this could include innovations in production processes that reduce material waste, improve energy efficiency, or involve cleaner technologies that lower environmental impact. When such innovations are embedded within the organization through structured learning—such as employee training, experiential knowledge sharing, and adaptation to technological changes—firms enhance their ability to anticipate market shifts and respond with agility.

Moreover, learning plays a critical role in ensuring that innovation is not a one-time event but a sustained process. (Jingwen et al., 2025) Organizational learning refers to the ability of a firm to create, retain, and transfer knowledge, enabling it to adapt to environmental changes and continuously improve its strategic and operational decisions. Learning mechanisms—feedback loops, knowledge management systems, and innovation workshops—empower MSMEs to refine their resource utilization strategies, optimize internal processes, and reduce the likelihood of failure in new initiatives.

In addition to NRBV, the positive impact of innovation and learning on business success can also be viewed through the lens of CSR theory, particularly in terms of creating shared value (Barbosa et al., 2025). (Gu et al., 2022) Companies sometimes innovate to not only increase profits, they also create innovations to address social or environmental issues. (e.g., creating biodegradable packaging, developing low-energy products, or enhancing employee well-being), they enhance their legitimacy in the eyes of stakeholders. This builds reputational capital and stakeholder trust—intangible assets crucial for MSMEs operating in competitive and resource-constrained environments. As a result, firms that align innovation and learning with CSR goals are better positioned to sustain long-term business growth while maintaining ethical and sustainable practices (Hameed et al., 2022).

Overall, the finding confirms that innovation and learning are not ancillary activities but are central to the business strategy of MSMEs seeking to thrive in a circular economy framework. Such capabilities enable the firm to be proactive and adaptive, ensuring resilience and sustained success in an ever-changing business landscape.

### **d) Positive Effect of Innovation and Learning on Business Success**

The results for Hypothesis 4 also demonstrate a statistically significant positive relationship, with a path coefficient of 0.597, a t-value of 3.561, and a p-value of 0.000. This indicates that innovation and learning have a substantial and beneficial impact on the social and environmental Performance of MSMEs. In other words, firms prioritising innovative thinking and cultivating learning-oriented cultures are more likely to exhibit responsible social behaviour and environmental stewardship.

This finding is particularly relevant within the Natural Resource-Based View (NRBV) framework, where environmental innovation is a key mechanism for reducing ecological harm while enhancing organizational competitiveness (Durrani et al., 2024). When MSMEs develop eco-innovations—such as low-emission manufacturing processes, sustainable product design, or circular supply chains—they meet regulatory requirements and actively contribute to the preservation of natural ecosystems. When supported by a strong learning culture, these innovations become institutionalized practices that influence firm-wide values and long-term orientation. Organizational learning further facilitates the diffusion of environmental consciousness throughout the firm. Employees trained in sustainability principles are more likely to make decisions that reflect ecological responsibility in their daily tasks. Moreover, a learning culture encourages continuous

evaluation and improvement of environmental practices, ensuring that firms remain aligned with evolving societal expectations and technological advancements (Wang et al., 2022). From the CSR perspective, innovation and learning enhance the firm's capacity to fulfil its ethical obligations toward various stakeholders—including employees, local communities, and future generations (Tziner & Persoff, 2024). As an essential dimension of CSR, social performance reflects how firms manage their relationships with stakeholders through fair labour practices, community engagement, inclusivity, and ethical governance. MSMEs that promote innovation and learning tend to develop more socially responsible programs—such as vocational training for marginalized groups, employee wellness initiatives, or support for local community projects. These initiatives improve the quality of life for stakeholders and foster a strong sense of organizational identity and purpose.

Furthermore, CSR theory indicates that companies that innovate in a socially and environmentally responsible manner often gain advantages; these advantages include greater loyalty from stakeholders, better funding opportunities, and increased resilience to social and reputational risks (Ali et al., 2025). MSMEs, where financial and operational margins are often thin, such intangible benefits can significantly improve long-term viability. Notably, integrating innovation and learning into CSR and environmental strategies represents a transformational shift in how MSMEs define value (Yadav et al., 2024). Rather than viewing social and ecological responsibilities as cost centres or compliance burdens, firms see them as opportunities for differentiation, legitimacy, and innovation. For example, developing green products may open new markets; improving employee training can reduce turnover and boost productivity; engaging with local communities can strengthen license to operate and minimise resistance to business expansion. In the context of MSMEs in Padang City, the strong linkage between innovation and social-environmental Performance suggests that local firms can drive meaningful change beyond their immediate economic goals. With the right support structures—such as access to innovation networks, policy incentives, and knowledge exchange platforms—these MSMEs could become local champions of inclusive and sustainable development. Their efforts could serve as models for other small enterprises in emerging economies that face similar constraints yet are equally positioned to create high-impact change.

## **Conclusion**

This study confirms that the application of circular economy (CE) principles, especially in the aspect of resource utilization and innovation-learning, contributes significantly to improving the Performance of micro, small, and medium enterprises (MSMEs) in Padang City, Indonesia. With the Natural Resource-Based View (NRBV) approach, The study found that efficient utilization of resources and innovative capacity not only improves business success financially (e.g., revenue growth and profit margins) but also strengthens social and environmental Performance (such as employee well-being, community contribution, energy efficiency, and waste reduction) (Fernando et al., 2023). Statistically, all hypotheses proposed in the model were declared significant, where resource utilization had a positive effect on business success ( $\beta=0.266$ ;  $p<0.05$ ) and socio-environmental Performance ( $\beta=0.324$ ;  $p<0.05$ ). Meanwhile, innovation and learning have a more substantial impact on both Performance dimensions, namely business ( $\beta=0.669$ ;  $p<0.001$ ) and social and environmental ( $\beta=0.597$ ;  $p<0.001$ ). This shows that the ability of MSMEs to innovate and learn sustainably has a strategic double effect: increasing competitiveness while strengthening their social legitimacy.

The practical implications of this finding are quite broad. First, local governments and MSME support institutions need to encourage the adoption of circular economy principles by providing technical training, access to green technology, and fiscal incentives for MSMEs that implement sustainable practices. Second, a local innovation ecosystem—a network between business actors, academics, and communities—is needed to accelerate organizational learning and innovative collaboration at the micro level. Third, these results reinforce the importance of designing policy interventions that focus not only on the profitability aspects of MSMEs but also on their social and environmental missions, which are in line with the Sustainable Development Goals (SDGs). Theoretically, the main contribution of this study lies in incorporating NRBV with the circular economy framework in the context of MSMEs in developing countries, which was previously underexplored. This research also fills the literature gap by operationalizing the constructs of "resource utilization" and "innovation & learning" through measurable indicators and testing the causal relationship with the SEM-PLS approach.

As for the following research agenda, there are several essential recommendations. First, testing this model on a larger scale and across regions is needed to ensure the generalization of the findings. Second, qualitative exploration can complement the quantitative approach by exploring locally-based innovative practices in implementing the circular economy by MSMEs. Third, future research can develop mediation or moderation variables, such as market orientation, policy support, or digitalization, to strengthen the relationship between resource efficiency and sustainable Performance. Finally, longitudinal exploration of the long-term impact of the circular economy on the sustainability of MSMEs is essential to understand how the transformation of small businesses towards sustainable practices occurs dynamically in the reality of the field. Thus, this research not only expands the theoretical understanding of the relationship between the circular economy and the Performance of MSMEs but also provides an empirical foundation that can be used as a basis for policy formulation, business incubation program design, and strengthening the managerial capacity of MSMEs towards an inclusive and competitive green economy.

## References

- Abid, G., Contreras, F., Rank, S., & Ilyas, S. (2023). Sustainable leadership and wellbeing of healthcare personnel: A sequential mediation model of procedural knowledge and compassion. *Frontiers in Psychology, 13*(January), 1–14. <https://doi.org/10.3389/fpsyg.2022.1039456>
- Abilakimova, A., Bauters, M., & Afolayan Ogunyemi, A. (2025). Systematic literature review of digital and green transformation of manufacturing SMEs in Europe. *Production and Manufacturing Research, 13*(1). <https://doi.org/10.1080/21693277.2024.2443166>
- Agustin, N., & Satrianto, A. (2024). The Production Efficiency of Small Medium Enterprises in West Sumatera Province. *Jurnal Ekonomi Pembangunan, 21*(2), 211–221. <https://doi.org/10.29259/jep.v21i2.21141>
- Ali, N. B. M., Ali Hussin, H. A. A., Mohammed, H. M. F., Mohmmmed, K. A. A. H., Almutiri, A. A. S., & Ali, M. A. (2025). The Effect of Environmental, Social, and Governance (ESG) Disclosure on the Profitability of Saudi-Listed Firms: Insights from Saudi Vision 2030. *Sustainability (Switzerland), 17*(7), 1–25. <https://doi.org/10.3390/su17072977>
- Allioui, H., & Mourdi, Y. (2023). Exploring the Full Potentials of IoT for Better Financial Growth and Stability: A Comprehensive Survey. *Sensors, 23*(19). <https://doi.org/10.3390/s23198015>
- Almada, L., & Borges, R. (2018). Sustainable Competitive Advantage Needs Green Human Resource Practices: A Framework for Environmental Management. *Revista de Administração Contemporânea, 22*(3), 424–442. <https://doi.org/10.1590/1982-7849rac2018170345>
- Alwageed, H. S., Keshta, I., Khan, R. A., Alzahrani, A., Tariq, M. U., & Ghani, A. (2024). An empirical study for mitigating sustainable cloud computing challenges using ISM-ANN. In *PLoS ONE* (Vol. 19, Issue 9). <https://doi.org/10.1371/journal.pone.0308971>
- Angeles, A., Perez-Encinas, A., & Villanueva, C. E. (2022). Characterizing Organizational Lifecycle through Strategic and Structural Flexibility: Insights from MSMEs in Mexico. *Global Journal of Flexible Systems Management, 23*(2), 271–290. <https://doi.org/10.1007/s40171-022-00301-4>
- Ardhiyansyah, A., Juniansyah, M. A., & Putra, U. N. (2024). Have MSMEs in Indonesia Focused on Business Sustainability? The Influence of Environmental Orientation, Technology Implementation, Green Marketing, and Innovation Capability. *7*(2), 369–394.
- Bag, S., Srivastava, G., Cherrafi, A., Ali, A., & Singh, R. K. (2024). Data-driven insights for circular and sustainable food supply chains: An empirical exploration of big data and predictive analytics in enhancing social sustainability performance. *Business Strategy and the Environment, 33*(2), 1369–1396. <https://doi.org/10.1002/bse.3554>
- Bakkar, A., Li, S., & Nafizur, Y. (2023). The role of Fintech in circular economy practices to

improve sustainability performance : a two - staged SEM - ANN approach. *Environmental Science and Pollution Research*, 0123456789. <https://doi.org/10.1007/s11356-023-25576-7>

- Barbosa, M. W., Bronzo, M., Júnior, N. T., & de Sousa, P. R. (2025). Predictors of Corporate Reputation: Circular Economy, Environmental, Social, and Governance, and Collaborative Relationships in Brazilian Agribusiness. *Sustainability (Switzerland)*, 17(7), 1–31. <https://doi.org/10.3390/su17072969>
- Basri, M. A., Siradjuddin, S., & Sudirman, S. (2023). Utilization of Digital Technology-Based Marketing For the Development of Micro, Small and Medium Enterprises. *Economics, Business, Accounting & Society Review*, 2(2), 145–151. <https://doi.org/10.55980/ebasr.v2i2.71>
- Cheng, Y., Masukujjaman, M., Sobhani, F. A., Hamayun, M., & Alam, S. S. (2023). Green Logistics, Green Human Capital, and Circular Economy: The Mediating Role of Sustainable Production. *Sustainability (Switzerland)*, 15(2). <https://doi.org/10.3390/su15021045>
- Cuero-Acosta, Y. A., Amado-Mateus, M., Ricardo Torralba Barreto, D., & Castiblanco-Moreno, S. E. (2023). Reputation based on internal capabilities: The case of small enterprises within the Colombian orange economy. *PLoS ONE*, 18(6 June), 1–23. <https://doi.org/10.1371/journal.pone.0285026>
- de Mattos, C. S., Pellegrini, G., Hagelaar, G., & Dolfsma, W. (2024). Systematic literature review on technological transformation in SMEs: a transformation encompassing technology assimilation and business model innovation. In *Management Review Quarterly* (Vol. 74, Issue 2). Springer International Publishing. <https://doi.org/10.1007/s11301-023-00327-7>
- Derhab, N., & Elkhwesky, Z. (2023). A systematic and critical review of waste management in micro, small and medium-sized enterprises: future directions for theory and practice. *Environmental Science and Pollution Research*, 30(6), 13920–13944. <https://doi.org/10.1007/s11356-022-24742-7>
- Durrani, N., Raziq, A., Mahmood, T., & Khan, M. R. (2024). Barriers to adaptation of environmental sustainability in SMEs: A qualitative study. *PLoS ONE*, 19(5 May), 1–22. <https://doi.org/10.1371/journal.pone.0298580>
- Endris, E., & Kassegn, A. (2022). The role of micro, small and medium enterprises (MSMEs) to the sustainable development of sub-Saharan Africa and its challenges: a systematic review of evidence from Ethiopia. *Journal of Innovation and Entrepreneurship*, 11(1). <https://doi.org/10.1186/s13731-022-00221-8>
- Fahim, F., & Mahadi, B. (2022). Green supply chain management/green finance: a bibliometric analysis of the last twenty years by using the Scopus database. *Environmental Science and Pollution Research International*, 29(56), 84714–84740. <https://doi.org/10.1007/s11356-022-21764-z>
- Fernando, Y., Shaharudin, M. S., & Abideen, A. Z. (2023). Circular economy-based reverse logistics: dynamic interplay between sustainable resource commitment and financial performance. *European Journal of Management and Business Economics*, 32(1), 91–112. <https://doi.org/10.1108/EJMBE-08-2020-0254>
- Gong, Y., Xiao, J., Tang, X., & Li, J. (2023). How sustainable marketing influences the customer engagement and sustainable purchase intention? The moderating role of corporate social responsibility. *Frontiers in Psychology*, 14(March). <https://doi.org/10.3389/fpsyg.2023.1128686>
- Gu, X., An, X., & Liu, A. (2022). Environmental Regulation, Corporate Economic Performance and Spatial Technology Spillover: Evidence from China's Heavily Polluting Listed Corporations. *International Journal of Environmental Research and Public Health*, 19(3). <https://doi.org/10.3390/ijerph19031131>
- Hair, J., & Alamer, A. (2022). Partial Least Squares Structural Equation Modeling (PLS-SEM) in

second language and education research: Guidelines using an applied example. *Research Methods in Applied Linguistics*, 1(3), 100027. <https://doi.org/10.1016/j.rmal.2022.100027>

- Hameed, R., Mahmood, A., & Shoaib, M. (2022). The Role of Green Human Resource Practices in Fostering Green Corporate Social Responsibility. *Frontiers in Psychology*, 13(April). <https://doi.org/10.3389/fpsyg.2022.792343>
- Jackson, S. (2020). Development of a model for the estimation of the energy consumption associated with the transportation of CO<sub>2</sub> in pipelines. *Energies*, 13(10), 1–17. <https://doi.org/10.3390/en13102427>
- Javeed, S. A., Teh, B. H., Ong, T. S., Lan, N. T. P., Muthaiyah, S., & Latief, R. (2023). The Connection between Absorptive Capacity and Green Innovation: The Function of Board Capital and Environmental Regulation. *International Journal of Environmental Research and Public Health*, 20(4). <https://doi.org/10.3390/ijerph20043119>
- Jingwen, Y., Rahman, A. A., Tong, T., Kamarulzaman, N. H., & Sidek, S. Bin. (2025). A study of Chinese enterprises' business models to determine the impact of dynamic capabilities on innovation and performance. *PLoS ONE*, 20(1 January), 1–30. <https://doi.org/10.1371/journal.pone.0310854>
- Martínez-Peláez, R., Escobar, M. A., Félix, V. G., Ostos, R., Parra-Michel, J., García, V., Ochoa-Brust, A., Velarde-Alvarado, P., Félix, R. A., Olivares-Bautista, S., Flores, V., & Mena, L. J. (2024). Sustainable Digital Transformation for SMEs: A Comprehensive Framework for Informed Decision-Making. *Sustainability (Switzerland)*, 16(11). <https://doi.org/10.3390/su16114447>
- Novriyandana, R., Damayanti, R. A., Said, D., & Rijal, M. (2024). Challenges and Strategies of Dayak Entrepreneurs in Modernization: An Accounting Perspective. *Economics, Business, Accounting & Society Review*, 3(3), 159–169. <https://doi.org/10.55980/ebasr.v3i3.160>
- Piispanen, V. V., Henttonen, K., & Aromaa, E. (2020). Applying the circular economy to a business model: an illustrative case study of a pioneering energy company. *International Journal of Entrepreneurship and Innovation Management*, 24(4/5), 236. <https://doi.org/10.1504/IJEIM.2020.108253>
- Saptono, P. B., Khozen, I., Mahmud, G., Hodžić, S., Pratiwi, I., Purwanto, D., & Imantoro, L. W. (2024). Flourishing MSMEs: The Role of Innovation, Creative Compliance, and Tax Incentives. *Journal of Risk and Financial Management*, 17(12), 1–49. <https://doi.org/10.3390/jrfm17120532>
- Sharma, N. K., Govindan, K., Lai, K. K., Chen, W. K., & Kumar, V. (2021). The transition from linear economy to circular economy for sustainability among SMEs: A study on prospects, impediments, and prerequisites. *Business Strategy and the Environment*, 30(4), 1803–1822. <https://doi.org/10.1002/bse.2717>
- Stefania, F. (2024). Customer Satisfaction as a Key Driver of M-Tix Usage Intention: An Analytical Study. *Economics, Business, Accounting & Society Review*, 3(1), 69–81. <https://doi.org/10.55980/ebasr.v3i1.98>
- Tziner, A., & Persoff, M. (2024). The interplay between ethics, justice, corporate social responsibility, and performance management sustainability. *Frontiers in Psychology*, 15(February), 1–13. <https://doi.org/10.3389/fpsyg.2024.1323910>
- Wang, N., Zhang, J., & Wang, W. (2022). Impact of Environmental Innovation Strategy on Green Competitiveness: Evidence from China. *International Journal of Environmental Research and Public Health*, 19(10). <https://doi.org/10.3390/ijerph19105879>
- Wu, G. (2017). Effects of Socially Responsible Supplier Development and Sustainability-Oriented Innovation on Sustainable Development: Empirical Evidence from SMEs. *Corporate Social Responsibility and Environmental Management*, 24(6), 661–675. <https://doi.org/10.1002/csr.1435>

- Yadav, U. S., Ghosal, I., Pareek, A., Khandelwal, K., yadav, A. K., & Chakraborty, C. (2024). Impact of entrepreneurial orientation and ESG on environmental performance: moderating impact of digital transformation and technological innovation as a mediating construct using Sobel test. In *Journal of Innovation and Entrepreneurship* (Vol. 13, Issue 1). Springer Berlin Heidelberg. <https://doi.org/10.1186/s13731-024-00443-y>
- Zahid, Z., Zhang, J., Shahzad, M. A., Junaid, M., & Shrivastava, A. (2024). Green Synergy: Interplay of corporate social responsibility, green intellectual capital, and green ambidextrous innovation for sustainable performance in the industry 4.0 era. *PLoS ONE*, 19(8), 1–23. <https://doi.org/10.1371/journal.pone.0306349>