

## THE INFLUENCE OF SUSTAINABLE HUMAN RESOURCE MANAGEMENT ON OPERATIONAL EFFICIENCY MEDIATED BY SUSTAINABLE EMPLOYEE LIFE CYCLE IN MSME CULINARY CREATIVE INDUSTRY

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**Abstract:** This study aims to analyze the influence of Sustainable Human Resource Management (SHRM) on Sustainable Employee Life Cycle (SELC) and Operational Efficiency, as well as the mediating role of SELC in Micro, Small, and Medium Enterprises (MSMEs) within the culinary creative industry sector across Soloraya. High employee turnover rates (20–40% per year) and operational inefficiencies caused by unstandardized HR practices present critical challenges for MSME sustainability. Grounded in the Resource-Based View (RBV) and Ability-Motivation-Opportunity (AMO) theory, this quantitative research collected empirical data from 59 business owners, managers, and key operational employees across 10 culinary MSMEs using a structured questionnaire. Data analysis was executed using Partial Least Squares Structural Equation Modeling (PLS-SEM) via SmartPLS software. The measurement model evaluation confirmed high convergent validity (outer loadings > 0.70, AVE > 0.50), discriminant validity (HTMT < 0.85), and internal consistency (Composite Reliability > 0.89). Structural model testing revealed that SHRM significantly and positively affects SELC ( $\beta = 0.542$ ,  $p < 0.001$ ) (H1). Furthermore, SELC exerts a significant positive impact on Operational Efficiency ( $\beta = 0.418$ ,  $p < 0.001$ ) (H2) and acts as a partial mediator in the relationship between SHRM and Operational Efficiency ( $\beta = 0.226$ ,  $p = 0.004$ ) (H3). The overall model explains 61.2% of the variance in Operational Efficiency ( $R^2 = 0.612$ ). The findings imply that systematically structuring the employee life cycle through SHRM principles provides a strategic operational mechanism to minimize turnover, reduce operational waste, and enhance MSME operational performance.

**Keywords:** *Sustainable Human Resource Management, Sustainable Employee Life Cycle, Operational Efficiency, PLS-SEM, Culinary MSMEs.*

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### 1. Introduction

Micro, Small, and Medium Enterprises (MSMEs) constitute the primary pillar of the Indonesian economy, absorbing more than 97% of the national workforce (Kementerian Koperasi dan UKM, 2023). Despite their substantial contribution to employment, the MSME

sector—particularly in the culinary creative industry—faces severe challenges regarding productivity and business sustainability (Utami et al., 2023). The phenomenon of operational inefficiency in culinary MSMEs is frequently reflected in high order completion delays, product quality inconsistencies, and uncontrolled production cost fluctuations (Jabbour & Santos, 2008). Previous studies indicate that financial capital constraints are not the sole root cause; rather, human resource (HR) management practices remain largely informal, ad-hoc, and unstandardized (Renwick et al., 2013). The most critical problem faced by culinary MSMEs is high employee turnover, ranging from 20% to 40% annually (Utami et al., 2023). This elevated turnover rate directly erodes profit margins by 15% to 20% due to recurring recruitment and training costs, alongside productivity declines caused by the learning curves of new employees (Ridoy et al., 2024). This condition is exacerbated by the absence of written Standard Operating Procedures (SOPs) in most culinary MSMEs (only about 35% possess them), minimal periodic training allocations (<10%), and lack of measurable Key Performance Indicators (KPIs) (Ehnert et al., 2016). Theoretically, the link between HR management and operational efficiency can be explained through the Resource-Based View (RBV) (Barney, 1991) and the Ability-Motivation-Opportunity (AMO) Theory (Appelbaum et al., 2000). Based on RBV, human resources represent internal strategic capital capable of generating a sustained competitive advantage if managed to be valuable, rare, inimitable, and non-substitutable (Barney, 1991; Wright et al., 2001). Meanwhile, AMO theory posits that operational performance and efficiency are functions of employee Ability, Motivation, and Opportunity (Appelbaum et al., 2000; Boxall & Purcell, 2011). To transform human resources into strategic assets, organizations require the concept of Sustainable Human Resource Management (SHRM) (Piwowar-Sulej, 2021). SHRM aligns HR strategy with long-term economic performance and social well-being (Ehnert et al., 2016). To operationalize strategic SHRM policies effectively in practice, a Sustainable Employee Life Cycle (SELC) framework is necessary (Ridoy et al., 2024). SELC systematically maps employee management stages sustainably, spanning green recruitment, sustainable onboarding, retention, and exit management (Ridoy et al., 2024; Utami et al., 2023).

Despite the growing awareness of SHRM and SELC, empirical research explicitly testing the causal relations among SHRM, SELC, and Operational Efficiency in culinary MSMEs remains scarce. Therefore, this study aims to examine the effect of SHRM on SELC, the effect of SELC on Operational Efficiency, and the mediating role of SELC using Partial Least Squares Structural Equation Modeling (PLS-SEM) (Hair et al., 2021). Research Hypotheses: H1: Sustainable Human Resource Management (SHRM) has a positive and significant effect on Sustainable Employee Life Cycle (SELC) (Piwowar-Sulej, 2021; Ridoy et al., 2024). H2: Sustainable Employee Life Cycle (SELC) has a positive and significant effect on Operational Efficiency (Appelbaum et al., 2000; Ridoy et al., 2024). H3: Sustainable Employee Life Cycle (SELC) mediates the effect of Sustainable Human Resource Management (SHRM) on Operational Efficiency (Hair et al., 2021; Utami et al., 2023).

## **2. Research Method**

This study adopted an explanatory quantitative design to test causal relationships among latent variables (Hair et al., 2021). The target population comprised culinary creative MSMEs located in the Soloraya region. Purposive sampling was used to select MSMEs operating for at least two years with a structured workforce of permanent or part-time staff (Sekaran & Bougie, 2016). The final sample consisted of 59 respondents including business owners, operational

managers, and supervisors from 10 representative culinary MSMEs in Soloraya (such as Oemah Anglo, Bebek Solo, Madina Bakery, Afif Catering, Spesial Sapi, Bebek Forever, Niels Snack, Ayam Kremes Bu Sugi, Burger Ahjussi, and Idako Snacks) (Utami et al., 2023). Data were gathered using a structured questionnaire measured on a 5-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree). The operationalization of variables included (Hair et al., 2021; Renwick et al., 2013; Ridoy et al., 2024):

- a. **Sustainable HRM (X)**: Measured through Green Recruitment (GR1, GR2), Green Training & Development (GTD1, GTD2), and Green Reward System (GRS1).
- b. **Sustainable Employee Life Cycle (Z)**: Measured through Sustainable Onboarding (SO1, SO2), Sustainable Retention (SDR1, SDR2), and Sustainable Exit/Retain (SRE1).
- c. **Operational Efficiency (Y)**: Measured through Productivity & Efficiency (OPE1, OPE2) and Work Efficiency (WE1, WE2).

Data analysis was conducted using Partial Least Squares Structural Equation Modeling (PLS-SEM) via SmartPLS 4 (Hair et al., 2021). Evaluation included measurement model testing (outer model) for validity and reliability, followed by structural model testing (inner model) via bootstrapping with 5,000 resamples at a significance level of  $\alpha = 5\%$  ( $t$  table = 1.96) (Hair et al., 2021; Ringle et al., 2020).

### 3. Result and Discussion

#### 3.1. Results

##### Measurement Model Evaluation (Outer Model)

Evaluation of the outer model was performed to ensure that indicators were valid and reliable measures of their latent constructs (Hair et al., 2021). Convergent validity was assessed based on outer loadings ( $> 0.70$ ) and Average Variance Extracted ( $AVE > 0.50$ ) (Hair et al., 2021).

**Table 1. Outer Loadings of Indicators**

| Latent Variable                     | Indicator Code | Outer Loading | Result |
|-------------------------------------|----------------|---------------|--------|
| Sustainable HRM (X)                 | GR1            | 0.782         | Valid  |
| Sustainable HRM (X)                 | GR2            | 0.754         | Valid  |
| Sustainable HRM (X)                 | GTD1           | 0.845         | Valid  |
| Sustainable HRM (X)                 | GTD2           | 0.821         | Valid  |
| Sustainable HRM (X)                 | GRS1           | 0.790         | Valid  |
| Sustainable Employee Life Cycle (Z) | SO1            | 0.812         | Valid  |
| Sustainable Employee Life Cycle (Z) | SO2            | 0.835         | Valid  |
| Sustainable Employee Life Cycle (Z) | SDR1           | 0.860         | Valid  |
| Sustainable Employee Life Cycle (Z) | SDR2           | 0.798         | Valid  |
| Sustainable Employee Life Cycle (Z) | SRE1           | 0.775         | Valid  |
| Operational Efficiency (Y)          | OPE1           | 0.852         | Valid  |
| Operational Efficiency (Y)          | OPE2           | 0.810         | Valid  |
| Operational Efficiency (Y)          | WE1            | 0.795         | Valid  |
| Operational Efficiency (Y)          | WE2            | 0.828         | Valid  |

*Source: Processed SmartPLS Data (2026)*

As displayed in Table 1, all indicator outer loadings exceeded 0.70 (ranging from 0.754 to 0.860). Reliability and AVE assessments are presented in Table 2:

**Table 2. Construct Reliability and Validity**

| Latent Variable                     | Cronbachs Alpha | Composite Reliability | AVE   | Evaluation       |
|-------------------------------------|-----------------|-----------------------|-------|------------------|
| Sustainable HRM (X)                 | 0.854           | 0.895                 | 0.638 | Valid & Reliable |
| Sustainable Employee Life Cycle (Z) | 0.872           | 0.907                 | 0.666 | Valid & Reliable |
| Operational Efficiency (Y)          | 0.841           | 0.893                 | 0.676 | Valid & Reliable |

*Source: Processed SmartPLS Data (2026)*

Results in Table 2 confirm that all constructs achieved AVE values above 0.50 (0.638 – 0.676), demonstrating that latent variables explained over 50% of indicator variance (Hair et al., 2021). Cronbach's Alpha ( $> 0.84$ ) and Composite Reliability ( $> 0.89$ ) values exceeded the 0.70 threshold, indicating high internal consistency (Hair et al., 2021). Discriminant validity was verified using the Heterotrait-Monotrait Ratio (HTMT) criterion with a threshold of  $< 0.85$  (Henseler et al., 2015). HTMT values were below 0.85, with the highest value at 0.715 (between SELC and Operational Efficiency), confirming discriminant validity (Henseler et al., 2015).

### **Structural Model Evaluation (Inner Model)**

Inner model evaluation involved checking the coefficient of determination ( $R^2$ ), predictive relevance ( $Q^2$ ), and hypothesis testing through bootstrapping (Hair et al., 2021). Indicates an  $R^2$  of 0.518 for SELC (Z), showing that 51.8% of its variance is explained by SHRM (X). Operational Efficiency (Y) yielded an  $R^2$  of 0.612, demonstrating that 61.2% of its variance is explained by SHRM (X) and SELC (Z) combined (Hair et al., 2021). Blindfolding analysis produced  $Q^2$  values of 0.328 (SELC) and 0.391 (Operational Efficiency), confirming predictive relevance (Hair et al., 2021).

### **The Influence of Sustainable HRM on Sustainable Employee Life Cycle (H1)**

H1 testing demonstrated that SHRM significantly and positively affects SELC ( $\beta = 0.542$ ,  $t = 4.812$ ,  $p < 0.001$ ). This confirms that applying SHRM principles—such as green recruitment, material efficiency training, and fair reward structures—directly strengthens employee life cycle execution (Piwowar-Sulej, 2021; Renwick et al., 2013). Aligning recruitment with sustainability values accelerates employee onboarding and role alignment. This aligns with RBV premises, where structured HR practices build valuable and committed human capital (Barney, 1991; Wright et al., 2001).

### **The Influence of Sustainable Employee Life Cycle on Operational Efficiency (H2)**

H2 testing confirmed that SELC exerts a significant positive impact on Operational Efficiency ( $\beta = 0.418$ ,  $t = 3.651$ ,  $p < 0.001$ ). The path coefficient ( $\beta = 0.418$ ) identifies SELC as a core operational driver in culinary MSMEs (Ridoy et al., 2024). Managing onboarding, continuous training, and retention systematically reduces employee turnover significantly (Utami et al., 2023). Consequently, lower turnover stabilizes production workflows, minimizes food waste, and speeds up service delivery cycle times (Jabbour & Santos, 2008). This supports AMO Theory, where optimizing Ability, Motivation, and Opportunity leads to enhanced operational outcomes (Appelbaum et al., 2000; Boxall & Purcell, 2011).

### **The Mediating Role of Sustainable Employee Life Cycle (H3)**

H3 testing indicated that SELC significantly mediates the SHRM-Operational Efficiency relationship ( $\beta = 0.226$ ,  $t = 2.894$ ,  $p = 0.004$ ). The mediation pattern is **partial mediation**, as the direct effect remains significant alongside the indirect path (Hair et al., 2021). This finding emphasizes that translating strategic SHRM intent into practical operational efficiency requires an operational mechanism like SELC to manage employee progression from entry to exit (Ehnert et al., 2016; Ridoy et al., 2024; Utami et al., 2023).

### **4. Conclusion**

This study empirically confirms that SHRM and SELC are key determinants of Operational Efficiency in culinary creative MSMEs. Based on PLS-SEM testing of the three hypotheses:

- a. SHRM significantly positively affects SELC ( $\beta = 0.542$ ,  $p < 0.001$ ).
- b. SELC significantly positively affects Operational Efficiency ( $\beta = 0.418$ ,  $p < 0.001$ ).
- c. SELC acts as a significant partial mediator between SHRM and Operational Efficiency ( $\beta = 0.226$ ,  $p = 0.004$ ).

The model accounts for 61.2% of the variance in Operational Efficiency ( $R^2 = 0.612$ ).

Practical & Managerial Implications:

- a. Standardization of Employee Life Cycle (SELC): MSME owners should implement simple onboarding SOPs and peer mentoring to curb turnover and accelerate skill mastery.
- b. Efficiency-Oriented Training: MSMEs need regular training sessions focused on hygiene, food waste reduction, and energy efficiency.
- c. Targeted Incentive Systems: Offering non-financial rewards or efficiency bonuses tied to simple KPIs enhances workforce motivation and retention.

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