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Key Performance Indicator for Intrinsic Motivation in Micro, Small and Medium Enterprises (MSMEs) in Padang City

Olandari Mulyadi[1], Ai Elis Karlinda[2], Desi Permata Sari[3]

[1,2,3]Fakultas Ekonomi dan Bisnis, Universitas Putra Indonesia "YPTK" Padang, Padang, Indonesia
**Corresponding author: Olandari Mulyadi*
Corresponding Email: olandarimulyadi@upiyptk.ac.id

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ABSTRACT

Despite the widespread adoption of Key Performance Indicators (KPIs) as performance management tools, existing literature has predominantly examined their effectiveness in large organizations and employee-oriented contexts, offering limited explanation of how KPIs influence intrinsic motivation in owner-managed Micro, Small, and Medium Enterprises (MSMEs). In MSMEs, where business owners simultaneously act as managers and operators, intrinsic motivation plays a central role in sustaining performance and long-term business viability. However, prevailing KPI frameworks remain largely formalistic and insufficiently aligned with the practical and psychological realities faced by MSME owners. This study examines the relationships between five KPI implementation methods and the intrinsic motivation of MSME owners across different business sectors in Padang City. This study employed a quantitative explanatory design involving 100 MSME owners. Multiple linear regression was used to examine the relationships between five KPI implementation methods and intrinsic motivation. The regression analysis was designed to assess both the simultaneous and individual associations of the five KPI methods with intrinsic motivation. The findings suggest a potential positive association between data analytics–based KPIs and intrinsic motivation. Data-driven performance feedback may help MSME owners assess business progress and make more informed decisions. The study contributes theoretically by highlighting the potential motivational relevance of data analytics–based performance management practices in owner-managed MSMEs rather than viewing these practices solely as performance measurement tools, thereby extending the literature on performance management and motivation in the MSME context. Practically, the findings suggest that MSME development programs and policy interventions may benefit from integrating basic data analytics capabilities with appropriate KPI frameworks to support evidence-based performance management to strengthen intrinsic motivation and support sustainable business growth.

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1. Introduction

Micro, Small, and Medium Enterprises (MSMEs) are an important sector in the Indonesian economy because they are able to absorb labor, increase income equity, and contribute significantly to Gross Domestic Product (GDP) (Basri et al., 2023; Ulkhair et al., 2023). However, the sustainability of MSMEs often faces obstacles in the aspect of human resource management, especially in terms of performance measurement. Most MSMEs still rely on intuition and subjective judgment in managing employees and themselves as owners, thus having implications for low work effectiveness, motivation, and business productivity. In fact, in an increasingly competitive business environment, an objective and measurable performance management instrument is needed to ensure business sustainability. One of the instruments that is recognized as able to provide a clear direction for organizations is the Key Performance Indicator (KPI). KPIs not only serve as a performance evaluation tool, but also as a mechanism to foster work motivation, as they provide a concrete picture of the achievement of expected goals (Santika et al., 2020).

A key research problem is the limited empirical understanding of how different KPI implementation methods are associated with intrinsic motivation among MSME owners, who simultaneously perform managerial and operational roles. This lack of clarity causes business owners to lack appropriate benchmarks in assessing the achievement of business targets, thus potentially lowering intrinsic motivation. In fact, intrinsic motivation is one of the important factors in maintaining the sustainability of MSMEs because it encourages business owners to continue to innovate, survive challenges, and increase their commitment to the business they run (Umar et al., 2022). The main problem that often arises in MSMEs is the lack of empirical clarity on how Key Performance Indicators (KPIs) influence intrinsic motivation among business owners. Prior studies have examined KPIs primarily in large corporations or employee-oriented contexts (Krasodomska & Zarzycka, 2021; Nunes et al., 2024), but few have explored their motivational implications for MSME owners as dual roles—managers and workers. Furthermore, previous research has largely emphasized managerial or operational barriers (Moktadir et al., 2020; Shaulska et al., 2021) rather than measuring the psychological outcomes of KPI adoption. This study therefore addresses the empirical gap by examining how different KPI implementation methods are associated with the intrinsic motivation of MSME owners in Padang City. Table 1 presents the number of MSMEs supported by the Padang City Government from 2022 to 2025.

Table 1. Number of MSMEs Supported by the Padang City Government, 2022–2025

Year	Number of MSMEs
2022	39,924
2023	42,282
2024	47,692
2025	47,289

Source: Padang City Cooperatives and SMEs Office (Dinas Koperasi dan UKM Kota Padang, 2025).

Based on the data in Table 1, the number of MSMEs fostered by the Padang City Government shows an increasing trend from 2022 to 2024. In 2022, the number of fostered MSMEs was recorded at 39,924 units. This number increased to 42,282 units in 2023, or experienced a growth of around 5.9% compared to the previous year. Furthermore, the number of supported MSMEs increased substantially in 2024 to 47,692 units, which means an increase of 5,410 units from 2023. However, in March 2025, the number of MSMEs recorded decreased slightly to 47,289 units, although overall it was still higher than in previous years.

The development of the number of MSMEs shows the dynamics of the growth of small and medium enterprises in Padang City. The observed growth may be associated with government support programs, business legalization initiatives, capacity-building activities, and digitalization efforts. Despite the decline in March 2025, the trend in the last four years generally shows that MSMEs in Padang City are growing and playing an important role in the regional economy.

Previous research on KPIs has been conducted in large companies and formal organizations, both to assess employee performance (Lepold et al., 2018; Ohlig et al., 2020) and organizational effectiveness (Zaripov et al., 2021; Wang et al., 2025). Several studies also emphasize that KPIs play an important role in improving job satisfaction, productivity, and operational efficiency (Alanazi et al., 2023; Lepold et al., 2018). However, studies that link the implementation of KPIs to the intrinsic motivation of MSME owners are still very limited. Most previous research has only focused on employees as objects, not on business owners who actually play a key role in business

sustainability. Building on this research gap, the contribution of the present study lies in its integrated examination of five Key Performance Indicator (KPI) implementation methods—Balanced Scorecard, SMART Method, Benchmarking, Participatory Approach, and Data Analytics—within a single explanatory framework assessing their relationships with intrinsic motivation among MSME owners. Unlike studies primarily emphasizing employee performance or organizational effectiveness, this research focuses on MSME owners who simultaneously undertake managerial and operational responsibilities. Furthermore, by examining MSMEs across the culinary, handicraft, service, and retail/other sectors in Padang City, this study seeks to provide context-specific comparative empirical evidence regarding the motivational relevance of different KPI implementation methods. This integrated, owner-centered perspective contributes to performance management literature by extending the examination of KPI practices beyond organizational performance measurement to their associations with intrinsic motivation in owner-managed enterprises.

Theoretically, KPIs are performance measurement tools that are specific, measurable, realistic, relevant, and time-limited (Almasarweh et al., 2024; Bumba et al., 2023). The implementation of proper KPIs can make it easier for business owners to monitor performance, identify opportunities for improvement, and make more strategic decisions (Fantozzi et al., 2025; Gyurak Babelova et al., 2025). Meanwhile, intrinsic motivation is defined as an internal drive that makes individuals work hard without having to rely on external incentives, but rather out of satisfaction, responsibility, and pride in their work (Kamberi, 2025; Wu et al., 2025). Thus, there is a close relationship between KPIs as a performance measurement instrument and intrinsic motivation as an internal drive in achieving business success.

Based on the background, problems, and literature review, this study aims to: (1) examine the relationships between Key Performance Indicator (KPI) implementation methods and the intrinsic motivation of MSME owners across the culinary, handicraft, service, and retail/other sectors in Padang City; and (2) assess the relative contributions of different KPI implementation methods to explaining variations in MSME owners' intrinsic motivation. Based on the reviewed literature, the conceptual framework of this study assumes that each KPI component—Balanced Scorecard (BSC), SMART Method, Benchmarking, Participatory Approach, and Data Analytics—serves as an independent variable influencing the intrinsic motivation of MSME owners. The conceptual framework proposes that the five KPI implementation methods may be associated with variations in MSME owners' intrinsic motivation.

2. Methods

Research Design

This study employs a quantitative explanatory research design to examine the relationships between five KPI implementation methods and intrinsic motivation among MSME owners in Padang City. The use of regression analysis is suitable when variables are operationalized as composite scores derived from structured questionnaire items. This design allows for a clear and interpretable assessment of the relative contribution of each KPI method to intrinsic motivation.

Population and Sampling Technique

The population of this study consists of Micro, Small, and Medium Enterprise (MSME) owners operating in Padang City. A total of 100 MSME owners were selected through purposive sampling. Eligible respondents had operated their businesses for at least three years and were directly involved in managing business performance. This sampling approach ensures that respondents possess sufficient experience with performance management practices, although it limits the generalizability of the findings beyond the sampled population.

The study utilizes primary data collected through a structured questionnaire administered directly to MSME owners. The questionnaire was designed to capture respondents' perceptions of KPI implementation and their intrinsic motivation in managing their businesses. All items were measured using a five-point Likert scale ranging from strongly disagree (1) to strongly agree (5). Data were collected in 2025 through a structured questionnaire administered to eligible MSME owners in Padang City. In addition to primary data, secondary data from academic journals, books, and official reports were used to support the conceptual framework and variable operationalization.

Measurement of Variables

The independent variables in this study consist of five KPI implementation methods: (1) Balanced Scorecard (BSC), (2) SMART Method, (3) Benchmarking, (4) Participatory Approach, and (5) Data Analytics. The Balanced Scorecard (BSC) (de-Almeida-e-Pais et al., 2023; Travinska et al., 2023)

represents a multidimensional approach linking financial and non-financial perspectives to individual motivation through goal alignment. The SMART framework draws on goal-setting theory (Goka et al., 2024; Steegh et al., 2025), which posits that specific and measurable goals enhance intrinsic motivation. Each variable was operationalized using multiple indicators adapted from relevant performance management and motivation literature, adjusted to reflect the MSME context. The dependent variable, intrinsic motivation, was measured using indicators that capture internal satisfaction, commitment, and personal fulfillment in business activities.

Benchmarking theory emphasizes social comparison as a motivational mechanism when individuals compare their performance against best practices. Benchmarking motivates evaluative judgment by reframing performance expectations (Allen & Ahlstrom-Vij, 2025). Benchmarking provides structured comparative standards that motivate organizational learning, improvement efforts, and evaluative judgment shifts (Björnsdottir et al., 2022). The Participatory Approach reflects principles of self-determination theory (Pervaiz et al., 2021; Yang & Gao, 2025), which argues that involvement in goal-setting increases autonomy and internal motivation (Michalovic et al., 2019; Suen et al., 2022). Finally, Data Analytics is grounded in evidence-based management theory, suggesting that data-driven decision-making enhances competence (Li et al., 2022) and perceived control—key components of intrinsic motivation (Dübbers & Schmidt-Daffy, 2021).

Data Analysis Techniques

Data analysis was conducted using SPSS version 25 through several systematic stages. Descriptive statistics were first employed to summarize respondent characteristics and describe the distribution of research variables. Classical assumption tests, including normality, multicollinearity, heteroscedasticity, and autocorrelation tests, were performed to confirm that the data met the requirements of multiple linear regression analysis. The regression model was then estimated to examine the simultaneous and partial effects of the five KPI methods on intrinsic motivation. The F-test was used to assess the overall significance of the model, while t-tests were applied to evaluate the individual influence of each independent variable at a 5 percent significance level.

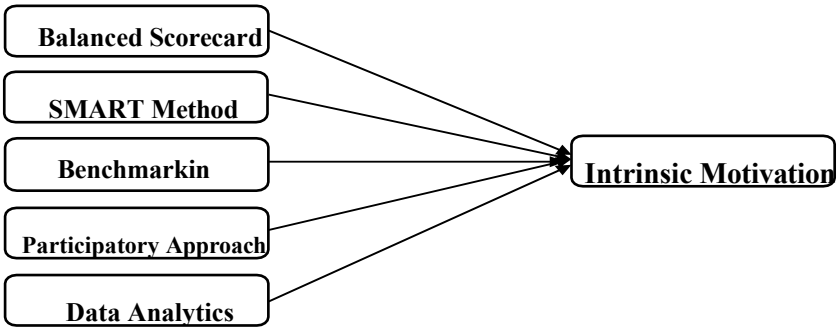


Figure 1. Conceptual Framework

3. Results

This section presents the results of the analysis examining the relationships between five KPI implementation methods and the intrinsic motivation of MSME owners across different business sectors in Padang City.

Table 2. Respondent Demographic Profile

Demographic Variable	Category	Frequency	Percentage (%)
Gender	Male	62	62
	Female	38	38
Age (years)	< 30	20	20
	30–40	40	40
	> 40	40	40
Education Level	High School	25	25
	Diploma	20	20
	Bachelor's Degree	45	45
	Postgraduate	10	10
Business Sector	Culinary	30	30
	Handicraft	35	35
	Services	20	20
	Retail / Other	15	15

Table 2 presents the demographic characteristics of the respondents. The results indicate that the respondents were predominantly male (62%), suggesting that MSME ownership in the sample is still largely male-dominated. The age distribution is relatively balanced, with 80% of owners aged 30 years and above, reflecting a mature and experienced entrepreneurial group. In terms of educational attainment, 55% of respondents held at least a bachelor's degree, comprising 45% with bachelor's qualifications and 10% with postgraduate qualifications. This educational profile may facilitate the adoption of managerial and analytical practices. The distribution across business sectors shows reasonable diversity, with handicraft (35%) and culinary (30%) enterprises being the most represented, suggesting that the findings reflect varied MSME operational contexts rather than a single dominant sector.

Table 3. Multicollinearity Diagnostics (Tolerance and VIF)

Independent Variable	Tolerance	VIF	Interpretation
BSC	0.612	1.634	No multicollinearity
SMART Method	0.587	1.703	No multicollinearity
Benchmarking	0.541	1.848	No multicollinearity
Participatory Approach	0.676	1.479	No multicollinearity
Data Analytics	0.628	1.593	No multicollinearity

The multicollinearity diagnostics indicate that all independent variables have tolerance values above 0.10 and Variance Inflation Factor (VIF) values well below the commonly accepted threshold of 10. These results suggest that multicollinearity is not a major concern in the estimated regression model. The absence of multicollinearity suggests that each KPI method contributes distinct explanatory information to the model.

Table 4. Descriptive Statistics of Research Variables

Variable	N	Minimum	Maximum	Mean	Std. Deviation
BSC	100	2.1	4.6	3.42	0.56
SMART Method	100	2.2	4.7	3.55	0.52
Benchmarking	100	1.9	4.5	3.18	0.61
Participatory Approach	100	2.0	4.8	3.47	0.58
Data Analytics	100	2.3	4.9	3.89	0.49
Intrinsic Motivation	100	2.8	5.0	3.98	0.47

Table 4 presents the descriptive statistics of the research variables based on responses from 100 MSME owners in Padang City. Data Analytics recorded the highest mean score (M = 3.89, SD = 0.49) among the five KPI implementation methods, followed by the SMART Method (M = 3.55, SD = 0.52), Participatory Approach (M = 3.47, SD = 0.58), Balanced Scorecard (M = 3.42, SD = 0.56), and Benchmarking (M = 3.18, SD = 0.61). Intrinsic Motivation recorded a mean score of 3.98 (SD = 0.47). These results describe respondents' perceptions of the research variables but do not independently establish statistically significant relationships between them.

Table 5. Regression Coefficients (Dependent Variable: Intrinsic Motivation)

Model		Unstandardized Coefficients		Standardized Coefficients			95% Confidence Interval for B	
		B	Std. Error	Beta	t	Sig.	Lower Bound	Upper Bound
1	(Constant)	12.475	2.184	—	5.713	0	8.137	16.813
	BSC	0.05	0.442	0.018	0.113	0.91	-0.827	0.927
	SMART Method	0.154	0.192	0.094	0.802	0.42	-0.227	0.535
	Benchmarking	-0.997	0.661	-0.221	-1.508	0.16	-2.309	0.315
	Participatory Approach	-0.038	0.678	-0.008	-0.056	0.96	-1.382	1.306
	Data Analytics	1.359	0.685	0.264	1.985	0.05	0.001	2.717

Table 5 presents the reported regression coefficients for the five KPI implementation methods in relation to intrinsic motivation among MSME owners in Padang City. The reported coefficients show positive directions for the Balanced Scorecard, SMART Method, and Data Analytics, while Benchmarking and Participatory Approach exhibit negative coefficients. However, the statistical consistency of the reported estimates and significance values requires verification against the original regression output before definitive conclusions can be drawn. These findings are in line with a systematic study that states that the effectiveness of BSC at the SME level is still inconsistent due to limited resources and organizational readiness (Abdul Rahman et al., 2024).

The SMART Method variable also showed a positive influence with a regression coefficient of 0.154, but the significance value was 0.424, so it was not significant. This indicates that although the concept of SMART (Specific, Measurable, Achievable, Relevant, Time-bound) is considered helpful in the preparation of performance indicators, its application has not had a real impact on the intrinsic motivation of MSME owners in Padang City. These results are consistent with recent research suggesting that the application of SMART is not always effective in improving psychological aspects such as intrinsic motivation, especially in the context of small businesses (Steegh et al., 2025).

Furthermore, Benchmarking has a negative regression coefficient (B = −0.997), but the relationship is not statistically significant. This means that the comparison of business performance with other parties does not make a significant contribution to intrinsic motivation, and even tends to lower motivation. This is possible because benchmarking at the MSME level often causes gaps and a lack of confidence when comparing themselves with more advanced businesses. Benchmarking only has a positive impact when managed as a learning tool, not as a direct comparison that has the potential to weaken business morale.

The Participatory Approach variable also has a negative value (-0.038) with a significance level of 0.956, which means it is not significant. These results show that participatory involvement in KPI formulation has not yet been a major driving factor for intrinsic motivation increases. This can be caused by the lack of understanding or experience of MSME owners in actively participating in the formal managerial process. Research by Pervaiz et al. (2021) confirms that participation in goal-setting does have the potential to increase proactive behavior, but its impact is highly dependent on organizational capacity and context.

Compared with the other four variables, Data Analytics showed a positive regression coefficient (B = 1.359), with a reported p-value of 0.050, indicating a borderline statistical result that requires verification. These results suggest a possible positive association between data analytics practices and intrinsic motivation among MSME owners. Business owners feel more confident, directed, and satisfied when they have concrete data to assess the progress of their business, so that their internal drive to continue to develop their business increases noticeably. The adoption of data analytics in small businesses can increase decision-making confidence and drive improvements in managerial performance. The regression coefficients indicate that Data Analytics exhibited a positive regression coefficient (B = 1.359; β = 0.264), with a reported p-value of 0.050. The statistical significance of this association requires verification using the original regression output. Other KPI methods exhibit weak and statistically insignificant relationships, suggesting limited motivational impact when implemented without strong data-driven support.

4. Discussion

The findings of this study provide important insights into how different Key Performance Indicator (KPI) implementation methods are associated with the intrinsic motivation of MSME owners in Padang City. Among the five KPI implementation methods, Data Analytics showed the largest positive standardized regression coefficient (β = 0.264), with a reported p-value of 0.050. However, the statistical significance of this association requires verification against the original regression output, while the remaining four KPI methods showed reported p-values above 0.05. This pattern may suggest that data-driven KPI practices are associated with intrinsic motivation among MSME owners, although further verification is required before drawing definitive conclusions. These findings reinforce the argument that performance management tools must be adapted to the operational realities and cognitive preferences of small business contexts (Bumba et al., 2023).

The observed positive coefficient for Data Analytics is consistent with the proposed relevance of data-driven performance management practices to intrinsic motivation. Gyurak Babelova et al. (2025) highlight that data analytics enhances the clarity of performance evaluation and reduces uncertainty in managerial decisions. In the MSME context, where owners often operate with limited resources and face high environmental uncertainty, access to clear performance data

appears to foster a stronger sense of control and competence. This aligns with intrinsic motivation theory, which posits that feelings of competence and mastery are central drivers of internally motivated behavior (Ryan & Deci, 2020; Umar et al., 2022). Empirical evidence from Fosso Wamba and Akter (2019) further supports this finding by showing that data analytics adoption in small businesses enhances decision-making confidence and managerial effectiveness.

In contrast, the insignificance of the BSC and SMART Method suggests that formalized performance frameworks may be less effective in motivating MSME owners when they are not accompanied by practical implementation support. Although the Balanced Scorecard is widely recognized as a comprehensive performance management tool, its effectiveness in small enterprises is often constrained by limited managerial capacity and the absence of structured organizational systems. Similarly, while the SMART framework is theoretically grounded in goal-setting theory, its application may remain superficial in MSMEs, focusing on goal formulation rather than continuous performance feedback. Recent critiques also indicate that SMART objectives do not consistently enhance intrinsic motivation, particularly in small-scale and informal business environments (Kamberi, 2025).

The negative but insignificant coefficients for Benchmarking and Participatory Approach further highlight contextual limitations. Benchmarking, although theoretically linked to social comparison and learning, may unintentionally reduce motivation among MSME owners when comparisons emphasize performance gaps rather than learning opportunities. This finding suggests that benchmarking without adequate facilitation may generate discouragement rather than motivation. Likewise, the Participatory Approach does not significantly affect intrinsic motivation, possibly because MSME owners already hold full decision-making authority, reducing the marginal motivational benefits of formal participation mechanisms. As noted by Pervaiz et al. (2021), the motivational impact of participation depends heavily on organizational context and individuals' prior involvement in decision-making processes.

These findings contribute to the performance management literature by demonstrating that not all KPI methods are equally effective in enhancing intrinsic motivation within MSMEs. The study extends prior research that has predominantly focused on employees in large organizations by highlighting the unique motivational dynamics of MSME owners as both managers and workers. Practically, the results imply that MSME support programs should prioritize strengthening data analytics capabilities rather than merely promoting formal KPI frameworks. Integrating digital literacy and basic data analytics tools into MSME development initiatives may therefore play a crucial role in sustaining intrinsic motivation and long-term business sustainability.

5. Conclusion

This study examined the relationships between five Key Performance Indicator (KPI) implementation methods and intrinsic motivation among MSME owners in Padang City. The reported regression coefficients indicated different directions and magnitudes of association across the five methods. Data Analytics showed the largest positive standardized regression coefficient ($\beta = 0.264$), with a reported p-value of 0.050. However, the statistical significance of this association requires verification against the original regression output. Therefore, the findings should be interpreted cautiously, particularly when drawing conclusions about the motivational implications of KPI implementation in MSMEs.

Theoretically, this study contributes to the performance management and motivation literature by examining the potential motivational relevance of data analytics–based KPI practices within the MSME context. Unlike traditional KPI frameworks that emphasize structure, formal alignment, or comparative evaluation, data-driven KPI practices may be associated with intrinsic motivation by providing clearer performance information and supporting managerial decision-making. These practices may be particularly relevant to MSME owners operating under resource constraints. The practical implications of the findings suggest that MSME development programs may benefit from integrating basic data analytics literacy with appropriate performance management frameworks. Such initiatives could help MSME owners interpret business data, improve managerial decision-making, and support sustainable business development. However, these potential benefits require further empirical verification.

Nevertheless, this study has several limitations. The use of purposive sampling and self-reported data may limit generalizability and introduce response bias, while the cross-sectional design restricts causal interpretation over time. Future research is therefore encouraged to adopt longitudinal approaches, incorporate organizational characteristics as moderating variables, and explore digital capability maturity as a contextual factor. Such extensions would deepen

understanding of how data-driven performance management systems evolve and sustain motivation in MSMEs.

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