

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

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ARTICLE INFO

Article history:

Received 10 June 2025

Revised 21 June 2025

Accepted 03 September 2025

Available Online 15 October 2025

Keywords:

Key Performance Indicator

Data Analytics

Intrinsic Motivation

Performance Management

MSMEs

Cite as:

Mulyadi, O., Karlinda, A. E., & Sari, D. P. (2025). Key Performance Indicator for Intrinsic Motivation in Micro, Small and Medium Enterprises (MSMEs) in Padang City. *Economics, Business, Accounting & Society Review*, 4(3), 439–448. <https://doi.org/10.55980/ebasr.v4i3.288>

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 investigates how different KPI implementation methods affect the intrinsic motivation of MSME owners in Padang City. Using a quantitative explanatory design, data were collected from 100 MSME owners and analyzed using multiple linear regression to assess the effects of five KPI methods: Balanced Scorecard, SMART method, benchmarking, participatory approach, and data analytics. The results show that KPI implementation has a significant simultaneous effect on intrinsic motivation. This finding indicates that data-driven KPIs function as a more effective motivational mechanism by providing concrete, evidence-based feedback that enhances owners' perceived competence, control, and decision clarity. The study contributes theoretically by repositioning data analytics-based KPIs as a core driver of intrinsic motivation rather than merely a performance measurement tool, thereby extending performance management and motivation literature in the MSME context. Practically, the findings suggest that MSME development programs and policy interventions should prioritize digital and data analytics capabilities over formal KPI frameworks 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 the era of increasingly competitive business competition, 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).

The main problem that often arises in MSMEs is the lack of clarity in designing and implementing KPIs. This lack of clarity causes business owners to not have the right benchmark 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 analyzing how different KPI methods (Balanced Scorecard, SMART, Benchmarking, Participatory Approach, and Data Analytics) affect the intrinsic motivation of MSME owners in Padang City. Table 1 presents number of MSMEs Fostered by the Padang City Government.

Table 1. Number of MSMEs Fostered by the Padang City Government

Year	Number of MSMEs
2022	39.924
2023	42.282
2024	47.692
2025	47.289

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, in 2024 the number of fostered MSMEs will again experience a significant surge 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 rapid growth in 2023–2024 can be attributed to various coaching programs, business legality facilitation, capacity building, and product digitalization encouraged by the Padang City Government. 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 (N. 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. Thus, this study offers novelty in the form of an analysis of the influence of KPIs on the intrinsic motivation of MSME owners in Padang City. This is important because MSME owners not only play the role of managers, but also the main actors who determine the direction of business development.

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) analyze the effect of the application of Key Performance Indicators on the intrinsic motivation of MSME owners in the handicraft sector in Padang City; and (2) identify the extent to which the implementation of KPIs can increase intrinsic motivation that has an impact on business profitability and sustainability. 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 framework posits that a data-driven and participatory performance system enhances owners' internal satisfaction and commitment, which in turn supports sustainable business growth.

2. Methods

Research Design

This study employs a quantitative explanatory research design to examine the influence of Key Performance Indicator (KPI) implementation methods on the intrinsic motivation of MSME owners in Padang City. The explanatory approach is appropriate because the study aims to test causal relationships between predefined independent variables and a dependent variable based on theoretical assumptions. Multiple linear regression is used as the main analytical technique because the research focuses on estimating the direct effects of several KPI methods on intrinsic motivation simultaneously. 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 sample of 100 respondents was determined using the Slovin formula to ensure an adequate sample size for regression analysis. The study applies purposive sampling, a non-probability sampling technique, to select respondents who meet specific criteria relevant to the research objectives. The inclusion criteria include MSME owners who (1) have operated their businesses for a minimum of three years, and (2) who are 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 collection was conducted over a defined period to ensure consistency in responses and minimize temporal bias. 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 is carried out through several stages: Descriptive analysis to describe the respondent profile and the distribution of answers.

Data Analysis Technique

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.

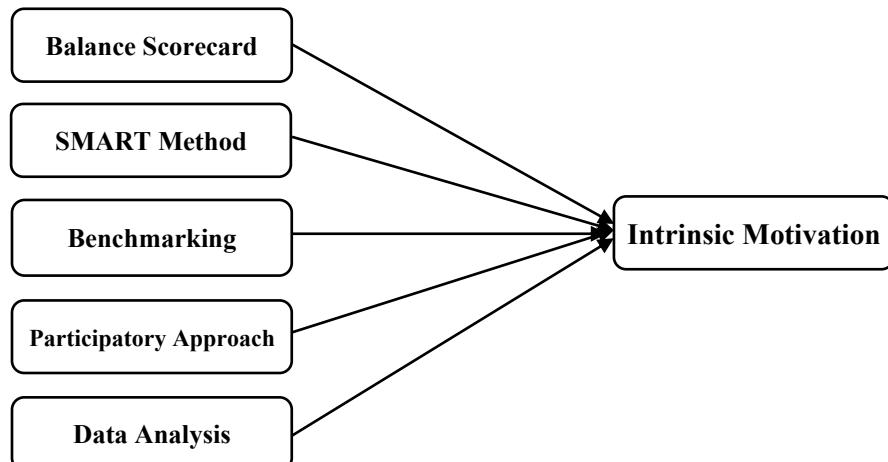


Figure 1. Conceptual Framework

3. Results

The results of this study examined the influence of five Key Performance Indicator (KPI) development methods on the intrinsic motivation of MSME owners in the handicraft sector in Padang City. The descriptive analysis showed that all variables had a high average value, with the intrinsic motivation of MSME owners at the mean value = 31.82.

Table 1. Respondent Demographic Profile

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

Table 1 presents the demographic profile indicates that the respondents are 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 education, most respondents hold at least a bachelor's degree (45%), indicating a relatively high educational background that 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 2. 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 confirm that multicollinearity is not present in the regression model, and thus the estimated coefficients can be interpreted reliably. The absence of multicollinearity suggests that each KPI method contributes distinct explanatory information to the model.

Table 3. 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 3 presents the descriptive statistics for all research variables. The results show that Data Analytics has the highest mean score among the KPI implementation methods, indicating a relatively strong adoption of data-driven practices among MSME owners. Intrinsic motivation also demonstrates a high mean value with low variability, suggesting generally strong internal motivation across respondents. The standard deviation values indicate moderate dispersion, implying sufficient variability to support regression analysis.

Table 4. 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

Notes:

a. Dependent Variable: Intrinsic Motivation

Significant values at $p < 0.05$

Table 4, the regression coefficients between variables. The BSC variable has a positive regression coefficient value of 0.050, but with a significance level of 0.910 which is far above 0.05. This shows that the application of the BSC does not have a significant effect on the intrinsic motivation of MSME owners. In other words, the implementation of performance indicators based on the Balanced Scorecard has not been able to encourage increased motivation from within business actors. 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 that criticizes 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, the Benchmarking variable actually has a negative regression coefficient value (-0.997) with a significance level of 0.135. 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.

In contrast to the previous four variables, Data Analytics was shown to have a significant influence on intrinsic motivation, with a positive regression coefficient of 1.359 and a significance value right at the limit of 0.050. These results confirm that the use of data analytics in performance management can increase the intrinsic motivation of 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 is the only KPI method with a positive and statistically significant effect on intrinsic motivation ($\beta = 0.264$; $p = 0.050$). 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 influence the intrinsic motivation of MSME owners in Padang City. The most salient result is that Data Analytics emerges as the only KPI method with a positive and statistically significant effect on intrinsic motivation, while the Balanced Scorecard (BSC), SMART Method, Benchmarking, and Participatory Approach do not demonstrate significant effects. This pattern suggests that MSME owners are more responsive to KPI practices that offer concrete, data-driven feedback rather than abstract or structurally complex managerial frameworks. 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 significant role of Data Analytics supports prior studies emphasizing the importance of evidence-based decision-making in improving managerial confidence and motivation. Gyurak Babelova (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 Wamba (Fosso Wamba & 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 analysis tools into MSME development initiatives may therefore play a crucial role in sustaining intrinsic motivation and long-term business sustainability.

5. Conclusion

This study concludes that the implementation of Key Performance Indicators (KPIs) plays a meaningful role in shaping the intrinsic motivation of MSME owners in Padang City. While the overall KPI model demonstrates a significant simultaneous effect on intrinsic motivation, the partial analysis reveals a more nuanced pattern. Among the five KPI methods examined, Data Analytics-based KPIs emerge as the only approach with a positive and statistically significant influence, whereas the Balanced Scorecard, SMART method, benchmarking, and participatory approach do not show significant motivational effects. These findings indicate that MSME owners respond more strongly to performance measurement systems that are concrete, evidence-based, and directly linked to observable business outcomes.

Theoretically, this study contributes to the performance management and motivation literature by positioning data analytics-based KPIs as a distinct motivational mechanism within the MSME context. Unlike traditional KPI frameworks that emphasize structure, formal alignment, or comparative evaluation, data-driven KPIs enhance intrinsic motivation by increasing perceived competence, control, and clarity in decision-making. This insight refines existing theories by demonstrating that, for owner-managed enterprises operating under resource constraints, motivation is more effectively fostered through practical and actionable performance feedback rather than abstract managerial models. The practical implications of the findings suggest that MSME development programs should reconsider their emphasis on formal KPI frameworks. Training initiatives and policy interventions would be more effective if they prioritize basic data analytics literacy, such as tracking sales trends, costs, and simple performance indicators. By enabling MSME owners to directly interpret and use business data, support programs can strengthen intrinsic motivation, improve managerial confidence, and contribute to long-term business sustainability.

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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