

KPI-based performance appraisal and employee performance: examining the sequential indirect associations through meaningful work and employee engagement among generation Z employees

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Abstract

The growing presence of Generation Z in the workforce has prompted organisations to rethink performance management approaches that address not only results but also employees' work experiences and engagement. Although prior studies have linked performance appraisal to employee performance, the interplay among KPI-Based Performance Appraisal, Meaningful Work, Employee Engagement, and Employee Performance remains underexplored. This quantitative explanatory study examines these relationships, including the specific indirect pathways through Meaningful Work and Employee Engagement, among Generation Z employees at an Indonesian retail company. Survey data were collected through purposive sampling and analysed using PLS-SEM with SmartPLS 4. The results show that KPI-Based Performance Appraisal is significantly and positively associated with Meaningful Work, Employee Engagement, and Employee Performance. Meaningful Work is positively associated with Employee Engagement and Employee Performance, and Employee Engagement is positively associated with Employee Performance. The specific indirect effects of KPI-Based Performance Appraisal on Employee Performance are also significant, whether through Meaningful Work, through Employee Engagement, or through both in sequence. These findings suggest that Meaningful Work and Employee Engagement operate as interconnected statistical pathways, interpreted through Self-Determination Theory and complemented by Goal-Setting Theory. KPI-based performance management may therefore be viewed not only as a measurement tool but also in relation to goal clarity, participation, feedback, meaningful work, and engagement. Given the cross-sectional design and single organisational context, the findings reflect statistical associations rather than causal effects and should not be taken as evidence that these relationships are unique to Generation Z.

Keywords:

employee engagement; employee performance; generation Z; KPI-based performance appraisal; meaningful work.

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Introduction

Performance management has shifted from periodic evaluation toward continuous goal alignment, feedback, and employee development, requiring HRM systems to adapt to changing workforce expectations (DeNisi & Murphy, 2017; Aguinis, 2019; Armstrong, 2022). This shift emphasises regular performance conversations and flexible objectives increasingly supported by digital performance data and electronic monitoring. Within this environment, KPI-based performance appraisal translates organisational priorities into measurable expectations that can support clarity and development (Armstrong, 2022). Goal-Setting Theory explains how specific, challenging goals, acceptance, and feedback direct effort (Locke & Latham, 1990, 2002), but provides less explanation of how formal targets become personally meaningful.

Meaningful work encompasses positive meaning, meaning-making, and contribution beyond the self, alongside purpose and self-realisation. Although associated with engagement this relationship can vary with employees' psychological resources (Steger et al., 2012; Lips-Wiersma & Wright, 2012; Meng et al., 2022; Albrecht et al., 2021). Engagement concerns the investment of physical, cognitive, and emotional energy in work (Kahn, 1990), commonly expressed through vigour, dedication, and absorption (Schaufeli et al., 2002). Its associations with persistence and performance (Bakker and Albrecht, 2018) make it relevant to understanding responses to appraisal practices (Nabhan et al., 2023; Saks, 2022). These experiences warrant attention among Generation Z employees, for whom workplace meaning and psychological conditions remain relevant concerns, including in Indonesian retail research on burnout and turnover, and workload, stress, and performance (Manurung et al., 2025).

Prior research has examined the proposed relationships in separate configurations. Anlesinya & Susomrith (2025) linked performance-management practices with meaningful work and employee loyalty. Albrecht et al. (2021) positioned meaningful work within a job-resources framework explaining

engagement, [Sinha et al. \(2026\)](#) examined engagement between meaningful work and performance. However, these studies leave limited evidence on whether KPI-based appraisal relates to performance through meaningful work and engagement simultaneously, including a sequential indirect pathway distinguishable from their separate indirect associations.

This gap matters in Indonesia, where youth employment conditions and Generation Z's adaptation to changing work demands remain policy concerns. Retail combines measurable targets with intensive customer-facing work, while digitalisation increases the availability of performance information and changes employee expectations ([BPS, 2024](#)). KPI systems may provide direction through participation and constructive feedback, yet create pressure when targets and monitoring are experienced as controlling. Self-Determination Theory (SDT) offers an overarching interpretation through autonomy, competence, and relatedness ([Ryan & Deci, 2000](#); [Gagné & Deci, 2005](#); [Ryan & Deci, 2020](#)), complemented by insights into work characteristics and goal-directed effort ([Locke & Latham, 1990, 2002](#)). Nevertheless, the coexistence of direct, specific indirect, and sequential indirect relationships within KPI-based appraisal remains insufficiently explained.

This study aims to examine how KPI-based performance appraisal relates to employee performance directly and indirectly through meaningful work and employee engagement, including their sequential pathway, among Generation Z employees in an Indonesian retail organisation. A cross-sectional survey was conducted in July 2026 among employees of a Muslim fashion retailer operating across Indonesia. Purposive sampling identified employees with at least six months of tenure and experience of formal KPI-based appraisal, yielding 223 valid responses. Five-point Likert-scale measures were analysed using PLS-SEM to assess direct, specific indirect, sequential indirect, and total relationships. An alternative parallel mediation model was examined to assess the sensitivity of the proposed specification.

The study contributes by distinguishing interconnected psychological pathways linking KPI-based appraisal with employee performance, rather than simply combining established constructs. It examines meaningful work both as a direct correlate of performance and as an intermediate experience associated with engagement within a formal appraisal context. SDT informs interpretation, although psychological need satisfaction and autonomous motivation are not directly tested. The findings provide contextual evidence from Generation Z employees in one Indonesian retailer, without implying causal ordering or relationships unique to this generation.

Literature review

Self-determination theory as the overarching theoretical perspective

Self-Determination Theory (SDT) explains how organisational practices relate to employees' psychological experiences and work outcomes. Environments

supporting autonomy, competence, and relatedness facilitate autonomous motivation, goal internalisation, and sustained effort, whereas controlling practices may encourage externally regulated behaviour (Deci et al., 2017; Ryan & Deci, 2020). KPI-based appraisal may support competence through clear expectations and constructive feedback, autonomy through participation, and relatedness through supportive discussions. Conversely, rigid targets and punitive monitoring may be experienced as controlling. Its psychological relevance therefore depends on how appraisal practices are implemented and experienced. Goal-Setting Theory (GST) complements SDT by explaining how challenging goals, feedback, and commitment direct effort (Locke & Latham, 1990, 2002). SDT remains the overarching perspective for interpreting the proposed appraisal–meaningfulness–engagement–performance sequence. Because psychological needs and internalisation were not directly measured, this sequence represents a theoretical interpretation rather than an established motivational mechanism.

KPI-based performance appraisal and meaningful work

Performance appraisal increasingly combines evaluation with goal alignment and employee development (DeNisi & Murphy, 2017; Aguinis, 2019; Armstrong, 2022). KPI-based appraisal communicates expectations and evaluates contributions, but its psychological implications depend on whether employees experience the process as informative, participative, and supportive. From an SDT perspective, clear expectations and constructive feedback may strengthen competence, while participation supports autonomy and ownership. GST similarly explains how goals and feedback connect individual effort with organisational objectives (Locke & Latham, 2002). However, externally imposed or narrowly numerical targets may prioritise compliance over employees' understanding of their contribution. Anlesinya & Susomrith (2025) associated performance-management practices with meaningful work in a Ghanaian public-sector organisation. Their findings complement Kubiak's (2022) proposition that need-supportive performance management can enhance meaningfulness. Although neither establishes the specific role of KPI-based appraisal in Indonesian retail, both support examining this relationship.

H1: KPI-Based Performance Appraisal is positively associated with Meaningful Work.

KPI-based performance appraisal and employee engagement

Engagement encompasses vigour, dedication, and absorption (Schaufeli et al., 2002), reflecting employees' physical, cognitive, and emotional investment in work roles (Kahn, 1990). SDT suggests that such investment is more likely in environments supporting autonomy, competence, and relatedness (Deci et al., 2017; Ryan & Deci, 2020). KPI-based appraisal may support engagement through clear

expectations, progress information, constructive feedback, and participatory discussions. Micacchi et al. (2024) linked appraisal design and perceived justice with engagement across Italian public-sector organisations. Lyu et al. (2023) likewise associated appraisal justice with engagement and performance, with engagement partially mediating their relationship. These findings suggest that appraisal quality matters beyond the presence of formal indicators. Informative and developmental practices may encourage involvement, whereas punitive targets and excessive monitoring may generate pressure.

H2: KPI-Based Performance Appraisal is positively associated with Employee Engagement.

KPI-based performance appraisal and employee performance

Clear expectations, feedback, and alignment with organisational objectives help employees regulate work behaviour (Aguinis, 2019; Armstrong, 2022). GST similarly explains how specific goals and feedback direct attention, effort, and persistence (Locke & Latham, 2002). SDT adds that employees' endorsement of organisational expectations may matter alongside compliance. Appraisal can clarify priorities and improvement opportunities, although excessive numerical emphasis may narrow attention to measured outcomes. Lyu et al. (2023) associated appraisal justice with performance both directly and through engagement and organisational identification, indicating the relevance of psychological responses. Accordingly, a positive association is expected, while recognising that formal KPI systems alone do not guarantee better performance.

H3: KPI-Based Performance Appraisal is positively associated with Employee Performance.

Meaningful work and employee engagement

Meaningful work concerns perceptions of purpose, significance, and contribution beyond task completion (Steger et al., 2012; Martela & Pessi, 2018). From an SDT perspective, personally valued work may encourage internalisation and self-endorsed effort, supporting psychological investment. Albrecht et al. (2021) associated meaningful work with engagement, while Meng et al. (2022) identified meaningfulness as a relevant pathway to work engagement. Indonesian evidence similarly supports this relationship (Tarek et al., 2025). Meaningful work is therefore positioned as a psychological condition associated with greater involvement in work roles.

H4: Meaningful Work is positively associated with Employee Engagement.

Meaningful work and employee performance: a critical perspective

Meaningful work may encourage effort and persistence through personally endorsed values (Ryan & Deci, 2020). JCM likewise positions experienced

meaningfulness as a psychological link between work characteristics and outcomes. However, its direct association with performance is not uniform Kim (2023), linked psychological meaningfulness with performance through self-efficacy. In contrast, Lestari et al. (2025) found no significant direct relationship, although meaningfulness was associated with engagement, which was associated with performance. This mixed evidence suggests that meaningful work may be a relatively distal condition whose relevance becomes clearer through more proximal motivational states. Testing both direct and mediated relationships avoids assuming that meaningfulness automatically translates into performance.

H5: Meaningful Work is positively associated with Employee Performance.

Employee engagement and employee performance

Engagement reflects energy, dedication, and attention invested in work (Schaufeli et al., 2002). Such investment may support concentration, persistence, and consistent task execution. Within an SDT-informed interpretation, engagement represents involvement compatible with self-endorsed motivation. Nabhan & Munajat (2023) associated engagement with job performance, while Nusraningrum et al. (2024) found that engagement mediated the motivation–performance relationship in Jakarta’s logistics sector. These findings support engagement as a proximal pathway to performance, alongside capabilities, resources, and organisational conditions.

H6: Employee Engagement is positively associated with Employee Performance.

Meaningful work as a mediator between KPI-based performance appraisal and employee performance

KPI-based appraisal may relate to performance indirectly through meaningful work. Clear expectations, constructive feedback, and participation can help employees connect their contributions with organisational purposes. SDT interprets this connection through the potential internalisation of externally communicated goals. Evidence for this specific mediation remains limited. Kim (2023) demonstrated the relevance of self-efficacy in linking psychological meaningfulness with performance, while Lestari et al. (2025) highlighted engagement. These studies establish the relevance of intervening psychological processes without confirming the proposed appraisal–meaningfulness–performance pathway, which therefore requires direct examination.

H7: Meaningful Work statistically mediates the association between KPI-Based Performance Appraisal and Employee Performance.

Employee engagement as a mediator between KPI-based performance appraisal and employee performance

KPI-based appraisal may also relate to performance through engagement. Clear goals and constructive feedback provide direction and competence-related information, while participatory discussions may support autonomy and relatedness. When experienced as supportive, these practices may encourage sustained involvement in work. [Lyu et al. \(2023\)](#) linked appraisal justice with performance through engagement and organisational identification. [Nusraningrum et al. \(2024\)](#) similarly identified engagement as a mediator between motivation and performance. Although these studies did not specifically test KPI-based appraisal, they support examining engagement as a pathway connecting appraisal experiences with performance.

H8: Employee Engagement statistically mediates the association between KPI-Based Performance Appraisal and Employee Performance.

Sequential mediation of meaningful work and employee engagement

The proposed sequence connects KPI-based appraisal with performance through meaningful work and engagement. SDT suggests that supportive practices may help employees endorse work goals and perceive their contributions as meaningful. Meaningfulness may then support psychological investment, expressed through engagement. GST and JCM complement this explanation through goals, feedback, and experienced significance. Evidence supports separate links rather than the complete sequence. [Anlesinya & Susomrith \(2025\)](#) associated performance-management practices with meaningful work, consistent with [Kubiak \(2022\)](#) theoretical argument. Meaningful work–engagement relationships are supported by [Albrecht et al. \(2021\)](#), [Meng et al. \(2022\)](#), and [Tarek et al. \(2025\)](#), while engagement–performance relationships are supported by [Nabhan & Munajat \(2023\)](#) and [Nusraningrum et al. \(2024\)](#).

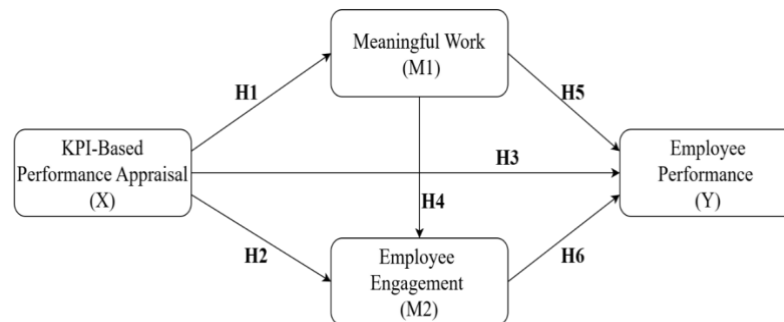
[Lestari et al. \(2025\)](#) found meaningfulness related to performance through engagement despite a nonsignificant direct relationship, whereas [Kim \(2023\)](#) identified a pathway through self-efficacy. These findings reinforce the importance of examining how meaningfulness connects with more proximal psychological states. The present study therefore tests the complete KPI-based appraisal → meaningful work → engagement → performance pathway among Generation Z employees in Indonesian retail. The sequential specification represents a theoretically proposed statistical relationship rather than evidence of temporal ordering.

H9: Meaningful Work and Employee Engagement sequentially mediate the association between KPI-Based Performance Appraisal and Employee Performance.

Figure 1 presents the proposed framework, specifying direct relationships among KPI-Based Performance Appraisal, Meaningful Work, Employee

Engagement, and Employee Performance, alongside individual and sequential indirect pathways.

Figure 1.
Research framework



Research method

Research design and organisational context

This study used a quantitative cross-sectional survey to examine the direct and indirect associations among KPI-Based Performance Appraisal, Meaningful Work, Employee Engagement, and Employee Performance. SDT informed the proposed psychological pathways, while Goal-Setting Theory complemented the interpretation of appraisal characteristics. Data were collected in July 2026 using a structured electronic questionnaire. The study involved a Muslim fashion retailer operating more than 100 branches across Indonesia. The organisation provided a relevant setting because it implemented formal KPI-based appraisal and employed predominantly Generation Z workers. Internal HR records identified 502 Generation Z employees within a workforce of 572 (87.8%).

Participant eligibility and sample adequacy

Purposive sampling identified Generation Z employees who were actively employed during data collection, had at least six months of tenure, and had participated in formal KPI-based appraisal. These criteria ensured direct experience of the practices assessed. Generation Z was operationally defined as individuals born between 1997 and 2012; the final sample comprised respondents born between 1997 and 2008.

Sample adequacy was examined retrospectively using the inverse-square-root approach proposed by Kock & Hadaya (2015). The smallest observed structural coefficient ($\beta = 0.180$) indicated a minimum of approximately 191 observations. This assessment was a post-hoc sensitivity check rather than an a priori power calculation and did not establish population representativeness. Questionnaires were distributed through Google Forms. Of 300 questionnaires distributed, 298

were returned (99.3%). Screening for completeness and eligibility excluded 75 responses, leaving 223 valid observations for analysis.

Instrument development and construct specification

Ten HRM academics reviewed the instrument for content relevance and contextual suitability. A pilot involving 30 individuals with characteristics comparable to the target population assessed comprehensibility and preliminary reliability. Minor wording revisions followed, and pilot participants were excluded from the analytical sample. All items used a five-point Likert scale ranging from 1 (“strongly disagree”) to 5 (“strongly agree”).

The initial instrument contained 40 indicators across four reflective constructs. KPI-Based Performance Appraisal comprised ten indicators covering goal clarity, difficulty, participation, commitment, feedback, and monitoring (Locke & Latham, 1990, 2002; Armstrong, 2022; DeNisi & Murphy, 2017). Meaningful Work comprised ten indicators adapted from WAMI, addressing positive meaning, meaning-making, and greater-good motivations (Steger et al., 2012). Employee Engagement comprised ten UWES-based indicators covering vigour, dedication, and absorption (Schaufeli et al., 2002). Employee Performance comprised ten indicators addressing output, timeliness, initiative, teamwork, and goal achievement (Aguinis, 2019; DeNisi & Murphy, 2017). Reflective specification treated indicators as manifestations of their underlying constructs. Item retention considered empirical performance alongside theoretical relevance and content coverage. The final measurement model retained 38 indicators.

Model estimation and hypothesis testing

PLS-SEM was implemented in SmartPLS 4 to assess the study’s explanatory and predictive objectives. Measurement evaluation preceded structural analysis. Loadings ≥ 0.70 were considered satisfactory; indicators loading between 0.40 and 0.70 were evaluated according to content relevance and the improvement achieved through removal, while those below 0.40 were considered for exclusion (Hair et al., 2022). Cronbach’s alpha and composite reliability ≥ 0.70 and AVE ≥ 0.50 provided conventional benchmarks. Marginal departures were assessed alongside indicator quality and content coverage rather than treated as meeting the benchmark. Discriminant validity was examined using the Fornell–Larcker criterion and HTMT < 0.90 . Predictor collinearity was assessed using structural VIF values, with values below 5 indicating no critical collinearity. Structural evaluation examined path coefficients, R^2 , and f^2 .

Bootstrapping with 5,000 subsamples generated standard errors, t-statistics, p-values, and 95% bias-corrected and accelerated (BCa) confidence intervals. Direct, specific indirect, total indirect, and total effects were distinguished. Indirect

associations were supported when their confidence intervals excluded zero. The sequential pathway was specified as KPI-Based Performance Appraisal → Meaningful Work → Employee Engagement → Employee Performance. Its interpretation remained associational because the design could not establish temporal ordering or causal mediation.

Alternative specification and predictive performance

A parallel mediation model omitted the Meaningful Work → Employee Engagement path while retaining both constructs as separate mediators. Identical estimation and bootstrapping procedures enabled comparison of indirect coefficients and explanatory power. This analysis assessed sensitivity to the proposed specification without establishing the causal superiority of either model. PLSpredict assessed out-of-sample predictive performance using Q^2_{predict} , RMSE, and MAE. Prediction errors were compared with the linear-model benchmark, separately from the in-sample variance explained by R^2 .

Common method bias and research ethics

Procedural safeguards included clear wording, confidentiality and anonymity assurances, and instructions encouraging honest responses. Full-collinearity VIF provided a supplementary diagnostic, with values ≤ 3.3 interpreted as limited evidence of serious common-method influence (Kock, 2015). This diagnostic was distinguished from structural predictor collinearity and was not treated as proof that method bias was absent. Participation was voluntary, and informed consent preceded questionnaire completion. Respondents received information about the study's purpose and academic data use. No personally identifiable information was collected through the instrument, and findings were analysed and reported in aggregate.

Results

Table 1 summarises the 223 respondents, predominantly women (76.7%) and senior high school or vocational graduates (71.7%). Respondents were aged 22–25 (48.0%), 26–29 (40.3%), or 18–21 years (11.7%). Tenure ranged from six months to under one year (18.4%), 1–2 years (35.0%), 2–3 years (22.9%), and over three years (23.8%). All respondents met the eligibility criteria: Generation Z membership, active employment, at least six months of tenure, and participation in formal KPI-based appraisal (Appendix 1). The sample therefore reflects employees with relevant appraisal experience within the organisation, without representing Generation Z employees more broadly.

Descriptive statistics were calculated from the initial 40-item instrument for 223 respondents; the final measurement model retained 38 indicators. Meaningful Work recorded the highest mean ($M = 4.396$, $SD = 0.428$), followed by KPI-Based

Performance Appraisal ($M = 4.238$, $SD = 0.451$), Employee Engagement ($M = 4.230$, $SD = 0.447$), and Employee Performance ($M = 4.212$, $SD = 0.408$) (Appendix 2). MW3 had the highest indicator mean (4.543), whereas EE9 had the lowest (3.623). Participation and monitoring indicators also received lower ratings than expectation clarity (Appendix 3). These patterns provide descriptive context without establishing their underlying causes.

Table 1.
Demographic profile of respondents (N = 223)

Characteristic	Category	Frequency	Percentage (%)
Gender	Male	52	23.3
	Female	171	76.7
Age (years)	18–21	26	11.7
	22–25	107	48.0
	26–29	90	40.3
	30–33	60	27.0
Education	Senior high school/vocational school	160	71.7
	Diploma/bachelor's degree	63	28.3
Working tenure	< 1 year	41	18.4
	1–2 years	78	35.0
	2–3 years	51	22.9
	> 3 years	53	23.8

Source: Author's work (2026)

Procedural safeguards included voluntary participation, anonymity, confidentiality, and instructions encouraging honest responses (Podsakoff et al., 2003). Full-collinearity VIF values ranged from 1.379 to 1.727, below 3.30 for all constructs (Appendix 4). This diagnostic indicated no excessive full collinearity, although common-method influence cannot be excluded given the single-source, cross-sectional design. The final model retained 38 indicators with loadings ranging from 0.532 to 0.993 (Appendix 5). EE9 (0.425) and EP5 (0.491) were removed because their exclusion improved reliability and AVE. Seven indicators loading below 0.70—KPI4, KPI5, KPI6, KPI8, KPI10, EE10, and MW9—were retained after considering measurement quality and content coverage.

Internal consistency was satisfactory under the guidelines of Hair et al. (2022). Cronbach's alpha ranged from 0.886 to 0.924, ρ_A from 0.902 to 0.925, and composite reliability from 0.906 to 0.936 (Appendix 6). AVE exceeded 0.50 for Meaningful Work (0.596), Employee Engagement (0.593), and Employee Performance (0.590), but was marginally below the benchmark for KPI-Based Performance Appraisal (0.496). Removing KPI4, KPI5, or KPI6 increased KPI AVE to 0.524, 0.515, or 0.512, respectively, without consistently improving reliability. These indicators were retained for content coverage; KPI reliability remained satisfactory ($\rho_C = 0.906$), while its convergent validity warrants caution.

HTMT values ranged from 0.707 to 0.864, satisfying the 0.90 criterion (Henseler et al., 2015; Hair et al., 2022). The highest value occurred between

Meaningful Work and Employee Engagement (0.864), followed by Employee Engagement and Employee Performance (0.811), supporting construct distinctiveness under the specified criterion (Appendix 7). Structural predictor VIF values were assessed against thresholds of 5.0 (Hair et al., 2022), and 3.3 (Kock, 2015). Values ranged from 1.000 to 3.126, indicating no critical predictor collinearity (Appendix 8). Using conventional R^2 benchmarks (Hair et al., 2022), the model demonstrated moderate explanatory power, accounting for 50.5% of variance in Meaningful Work, 68.0% in Employee Engagement, and 58.2% in Employee Performance (Appendix 9). Adjusted R^2 values ranged from 0.502 to 0.677, differing only slightly from the corresponding estimates.

Effect sizes were interpreted using the small (0.02), medium (0.15), and large (0.35) benchmarks (Hair et al., 2022). KPI-Based Performance Appraisal had a large effect on Meaningful Work ($f^2 = 1.019$), a medium effect on Employee Engagement (0.162), and a small effect on Employee Performance (0.054). Meaningful Work had a large effect on engagement (0.490) but a negligible direct contribution to performance (0.012), whereas engagement had a medium effect on performance (0.171) (Appendix 10). PLSpredict assessed predictive relevance following Shmueli et al. (2019) and Hair et al. (2022). Positive Q^2_{predict} values for Employee Engagement (0.517), Meaningful Work (0.495), and Employee Performance (0.424) indicated improvement over the naïve prediction benchmark (Appendix 11). Prediction-error comparisons are additionally required to assess performance against the linear-model benchmark.

Table 2.
Results of direct hypothesis testing

Relationship	O	STDEV	T	p	95% BCa CI	Decision
KPI → MW	0.741	0.033	22.482	<.001	[0.663, 0.795]	Supported
KPI → EE	0.253	0.065	3.915	<.001	[0.122, 0.372]	Supported
KPI → EP	0.206	0.078	2.636	.008	[0.054, 0.365]	Supported
MW → EE	0.606	0.062	9.747	<.001	[0.482, 0.726]	Supported
MW → EP	0.180	0.075	2.383	.017	[0.027, 0.321]	Supported
EE → EP	0.478	0.070	6.815	<.001	[0.333, 0.610]	Supported

Note: O represents the Original Sample estimate of the standardised path coefficient. STDEV represents the bootstrap standard error, calculated as the standard deviation of the bootstrap estimates. T represents the bootstrapped t-statistic, and p represents the bootstrapped p-value. BCa CI represents the 95% bias-corrected and accelerated confidence interval. Results were obtained from SmartPLS 4 using 5,000 bootstrap subsamples

Source: Author's work (2026)

RMSE ranged from 0.702 to 0.765 and MAE from 0.536 to 0.603, with the lowest errors for Employee Engagement and the highest for Employee Performance. Positive Q^2_{predict} values supported predictive relevance across the endogenous constructs, although predictive performance relative to the linear-model benchmark requires explicit error comparisons. Table 2 supports all six direct hypotheses. KPI-Based Performance Appraisal was positively associated with

Meaningful Work ($\beta = 0.741$, $p < .001$), Employee Engagement ($\beta = 0.253$, $p < .001$), and Employee Performance ($\beta = 0.206$, $p = .008$), supporting H1–H3. Meaningful Work was positively associated with engagement ($\beta = 0.606$, $p < .001$) and performance ($\beta = 0.180$, $p = .017$), supporting H4–H5. Engagement was also positively associated with performance ($\beta = 0.478$, $p < .001$), supporting H6. All 95% BCa confidence intervals excluded zero. Subsequent analysis examined the specific indirect associations through meaningful work and engagement.

Table 3.
Results of specific indirect effects

Relationship	O	STDEV	T	p	95% BCa CI	Decision
KPI → MW → EP	0.133	0.057	2.334	.020	[0.020, 0.242]	Supported
KPI → EE → EP	0.121	0.036	3.320	.001	[0.058, 0.198]	Supported
KPI → MW → EE → EP	0.214	0.040	5.335	< .001	[0.142, 0.299]	Supported
MW → EE → EP	0.289	0.051	5.666	< .001	[0.196, 0.397]	—

Note. O represents the Original Sample estimate of the standardised specific indirect effect. STDEV represents the bootstrap standard error, calculated as the standard deviation of the bootstrap estimates. T represents the bootstrapped t-statistic, and p represents the bootstrapped p-value. BCa CI represents the 95% bias-corrected and accelerated confidence interval. Results were obtained from SmartPLS 4 using 5,000 bootstrap subsamples

Source: Author's work (2026)

Table 3 supports the indirect associations between KPI-Based Performance Appraisal (KPI-BPA) and Employee Performance through Meaningful Work ($\beta = 0.133$, $p = .020$), Employee Engagement ($\beta = 0.121$, $p = .001$), and their sequential pathway ($\beta = 0.214$, $p < .001$), supporting H7–H9. All 95% BCa confidence intervals excluded zero. Meaningful Work also showed an indirect association with performance through engagement ($\beta = 0.289$, $p < .001$), reported as an additional, non-hypothesised pathway. Total indirect associations were significant for KPI-BPA with engagement ($\beta = 0.449$) and performance ($\beta = 0.468$), and for meaningful work with performance ($\beta = 0.289$; all $p < .001$; Appendix 12). The KPI-BPA–performance estimate combines the three specific indirect pathways in Table 3. Total associations were significant for KPI-BPA with meaningful work ($\beta = 0.741$), engagement ($\beta = 0.701$), and performance ($\beta = 0.674$); meaningful work with engagement ($\beta = 0.606$) and performance ($\beta = 0.469$); and engagement with performance ($\beta = 0.478$; all $p < .001$; Appendix 13). These aggregate estimates complement the direct and specific indirect results. Given the cross-sectional design, all pathways represent statistical associations rather than established temporal or causal mechanisms.

Alternative model and robustness analysis

An alternative parallel mediation model excluded the Meaningful Work (MW) → Employee Engagement (EE) path while retaining both as mediators between KPI-Based Performance Appraisal (KPI-BPA) and Employee Performance

(EP). Associations with EP remained similar to the sequential model: KPI-BPA ($\beta = 0.204$, $p = .009$), MW ($\beta = 0.183$, $p = .014$), and EE ($\beta = 0.478$, $p < .001$). Indirect associations through MW ($\beta = 0.135$, $p = .017$) and EE ($\beta = 0.335$, $p < .001$) remained significant, with a total indirect coefficient of 0.470 versus 0.468 in the sequential model (Appendix 14). The KPI-BPA $\rightarrow$ EE coefficient increased from 0.253 to 0.701 because MW was excluded as a predictor of EE. This change reflects model specification. The comparison indicates that the aggregate indirect association with performance was stable across specifications, without establishing temporal precedence or causal ordering between MW and EE.

Discussion

KPI-based performance appraisal, meaningful work, and employee engagement

KPI-Based Performance Appraisal was positively associated with Meaningful Work and Employee Engagement, supporting H1 and H2. The stronger association with meaningful work suggests that appraisal practices are closely connected with how employees interpret their roles and contributions. Clear expectations, feedback, and progress monitoring may provide direction while helping employees connect their activities with organisational objectives. SDT offers a theoretical interpretation through the relevance of participation to autonomy, informative feedback to competence, and supportive discussions to relatedness (Ryan & Deci, 2020). These mechanisms were not directly measured, however, so the findings support an SDT-informed interpretation rather than an empirical test of psychological need satisfaction.

The findings align with research emphasising performance information and developmental feedback, alongside people-oriented HR practices (DeNisi & Murphy, 2017). Their contribution lies in connecting appraisal, meaningfulness, engagement, and performance within one Indonesian retail setting. The Generation Z sample provides contextual relevance given reported preferences for transparency, development, meaningful work, and regular feedback (Deloitte, 2024). Without comparisons across generations, these associations cannot be attributed specifically to generational membership.

KPI-based performance appraisal and employee performance

The positive appraisal–performance association supported H3. SDT suggests that participation and constructive feedback may provide conditions conducive to positive work behaviour (Ryan & Deci, 2020). Goal-Setting Theory complements this interpretation: clear, challenging goals and feedback help employees prioritise tasks, regulate effort, and monitor progress (Locke & Latham, 1990, 2002). This explanation accords with performance-management research that treats appraisal as an ongoing developmental process rather than an administrative evaluation (DeNisi & Murphy, 2017). In customer-facing retail work, performance

information may help employees respond to competing operational demands. Nevertheless, the small direct effect size indicates that appraisal alone offers a limited explanation of performance. Its significant indirect associations through meaningful work and engagement provide additional explanatory pathways.

The roles of meaningful work and employee engagement in employee performance

Meaningful Work was positively associated with engagement and performance, supporting H4 and H5, while engagement was positively associated with performance, supporting H6. These findings distinguish employees' perceptions of purpose from their investment of energy and attention in work.

The direct meaningfulness–performance relationship adds context-specific evidence to mixed findings. [Lestari et al. \(2025\)](#) reported no significant direct relationship but identified an engagement pathway, whereas [Kim \(2023\)](#) identified self-efficacy as an intervening mechanism. Here, meaningful work retained a significant direct association alongside an indirect association through engagement, suggesting that neither a direct-only nor an indirect-only account fully represents the observed pattern. This distinction is consistent with engagement as physical, cognitive, and emotional investment ([Kahn, 1990](#)), and meaningful work as perceived purpose, significance, and contribution ([Steger et al., 2012](#); [Martela & Pessi, 2018](#)). SDT provides a compatible motivational interpretation ([Ryan & Deci, 2020](#)), although internalisation and autonomous motivation remain untested.

Effect sizes further qualify these relationships. Meaningful work's direct contribution to performance was negligible ($f^2 = 0.012$), despite statistical significance, whereas engagement's contribution was medium ($f^2 = 0.171$). Meaningfulness may therefore be more relevant to performance through engagement than through its unique direct association. This pattern reflects the constructs' positions within the specified model rather than establishing engagement as a universally stronger determinant.

The sequential mediating roles of meaningful work and employee engagement

The mediation results supported three pathways linking KPI-Based Performance Appraisal with performance: through meaningful work (H7), through engagement (H8), and sequentially through both (H9). The findings therefore indicate multiple indirect associations rather than a single psychological pathway. SDT offers an interpretation in which supportive appraisal experiences may relate to employees' endorsement of work goals and psychological involvement ([Ryan & Deci, 2020](#)). Goal-Setting Theory adds the role of expectations and feedback in directing effort ([Locke & Latham, 1990, 2002](#)). Together, these perspectives explain why appraisal may relate to performance through both informational and experiential processes, without establishing that the proposed sequence occurs over

time. The findings extend research connecting meaningfulness with positive work experiences and engagement, and engagement with work functioning (Steger et al., 2012; Martela & Pessi, 2018; Schaufeli et al., 2002; Bakker & Albrecht, 2018).

Theoretical implications

The study connects formal appraisal practices with employees' work experiences within an SDT-informed framework. Goal clarity, participation, and feedback offer theoretically relevant conditions for competence and autonomy (Ryan & Deci, 2020), but the findings do not directly confirm these mechanisms.

Goal-Setting Theory complements this perspective by explaining how goals and feedback guide attention and effort (Locke & Latham, 1990, 2002). The contribution is therefore an integrated examination of established motivational and goal-based perspectives, distinguishing direct, specific indirect, and sequential associations within one model.

The results also clarify meaningful work's intermediary position: it relates to performance directly and through engagement, while connecting appraisal with both outcomes. The negligible direct effect size and significant engagement pathway demonstrate why statistical significance should be considered alongside practical magnitude when interpreting meaningfulness.

Managerial implications

Managers may strengthen appraisal discussions by clarifying expectations, explaining how individual contributions support organisational objectives, and inviting employee participation. Regular feedback, coaching, recognition, and progress reviews can connect measurable targets with opportunities for development. These recommendations follow the observed associations but remain untested as causal interventions.

The findings support attention to meaningful work and engagement alongside performance metrics. Managers could use appraisal conversations to discuss task significance, obstacles, and improvement opportunities, while avoiding an exclusive focus on numerical compliance. These implications apply to the organisational context studied and do not justify a distinct management approach for Generation Z without comparative evidence.

Conclusion, limitations and future research

This study examined how KPI-Based Performance Appraisal relates to Employee Performance through Meaningful Work and Employee Engagement among Generation Z employees in an Indonesian retail organisation. Appraisal was positively associated with performance directly, through each mediator, and sequentially through both. Meaningful work also related to performance directly and through engagement, although its unique direct contribution was negligible.

These findings connect formal appraisal practices with employees' psychological experiences within an SDT-informed framework, complemented by Goal-Setting Theory, without directly establishing motivational mechanisms.

The single-organisation, purposive Generation Z sample limits generalisability and does not establish generation-specific relationships. Cross-sectional, self-reported data preclude temporal and causal inference and leave potential common-method influence unresolved. KPI appraisal's marginal AVE and retained lower-loading indicators also warrant measurement caution. Future research should refine the appraisal instrument using independent samples, directly measure psychological need satisfaction and autonomous motivation, and test alternative sequences through longitudinal or time-lagged designs. Multi-organisation and cross-generational studies using supervisor-rated or objective performance measures could assess contextual robustness, while theoretically grounded tests of organisational support, justice, psychological safety, and leadership could clarify boundary conditions.

Author contributions

Muhamad Abid: Conceptualisation, Methodology, Data Collection, Writing – Review and Editing. **Nariah:** Conceptualisation, Writing – Review and Editing. **Indra Januar Rukmana:** Writing – Review and Editing.

Declaration of interest

The authors report no financial or professional interest that could have influenced the conduct or reporting of this study.

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Appendix 1.

Summary of respondent characteristics relevant to the study

Criterion	Description	Evidence from sample
Generation	All respondents belong to generation Z (18–29 years)	223 respondents (100%)
Experience with KPI system	All respondents had participated in the company's KPI-based performance appraisal	223 respondents (100%)
Minimum organizational tenure	Respondents had worked for at least six months before participating	223 respondents (100%)
employment status	Active employees	223 respondents (100%)
Valid questionnaires	Questionnaires suitable for statistical analysis	223 valid responses

Note: The eligibility criteria were applied during respondent screening. The final sample consisted of 223 valid respondents

Source: Author's work (2026)

Appendix 2.

Descriptive statistics of the study variables

Construct	Number of Items	Mean	Standard Deviation	Interpretation
KPI-based performance appraisal	10	4.238	0.451	High
Meaningful work	10	4.396	0.428	High
Employee engagement	10	4.230	0.447	High
Employee performance	10	4.212	0.408	High

Note: Descriptive statistics are based on the initial 40-item instrument, with 10 items for each construct, before measurement-model refinement. Mean scores were measured using a five-point Likert scale (1 = strongly disagree to 5 = strongly agree). The final measurement model retained 38 indicators following the assessment of indicator reliability and validity

Source: Author's work (2026)

Appendix 3.

Highest and lowest rated indicators

Rank	Construct	Indicator	Mean	Standard Deviation	Interpretation
Highest 1	Meaningful work	MW3	4.543	0.399	Respondents strongly perceived their work as meaningful and valuable.
Highest 2	Employee performance	EP8	4.525	0.365	Respondents perceived themselves as consistently achieving expected work outcomes.
Highest 3	Meaningful work	MW1	4.511	0.410	Respondents perceived their work as providing a strong sense of personal meaning.

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Highest 4	KPI-based performance appraisal	KPI7	4.493	0.365	Respondents perceived that performance expectations were clearly communicated.
Highest 5	Employee engagement	EE7	4.471	0.393	Respondents reported a high level of enthusiasm and dedication toward their work.
Lowest 1	Employee engagement	EE9	3.623	0.600	Sustaining work engagement under challenging conditions received the lowest evaluation.
Lowest 2	Employee performance	EP5	3.700	0.575	Opportunities to improve initiative and proactive work behaviour received a comparatively lower evaluation.
Lowest 3	KPI-based performance appraisal	KPI5	3.843	0.565	Employee participation in the KPI process received a comparatively lower evaluation.
Lowest 4	KPI-based performance appraisal	KPI6	3.861	0.532	Continuous performance monitoring and follow-up received a comparatively lower evaluation.
Lowest 5	KPI-based performance appraisal	KPI4	4.009	0.588	Some aspects of KPI implementation received comparatively lower evaluations.

Note: The table presents the five highest- and five lowest-rated indicators based on their mean scores from the initial 40-item instrument. The descriptive ranking is reported separately from the final measurement-model assessment, in which 38 indicators were retained

Source: Author's work (2026)

Appendix 4.

Full collinearity VIF for common method bias assessment

Construct	Full Collinearity VIF	Threshold	Assessment
KPI-based performance appraisal	1.727	3.30	No excessive full collinearity
meaningful work	1.429	3.30	No excessive full collinearity
Employee engagement	1.379	3.30	No excessive full collinearity
Employee performance	1.570	3.30	No excessive full collinearity

Note: Full collinearity VIF values below 3.30 indicate that excessive full collinearity is not evident. Values below this threshold are interpreted as indicating that common method bias is unlikely to constitute a critical concern based on this diagnostic

Source: Author's work (2026)

Appendix 5.

Indicator reliability assessment

Construct	Indicator	Outer Loading	Decision
Employee engagement	EE1	0.769	Retained
	EE2	0.805	Retained
	EE3	0.771	Retained

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	EE4	0.763	Retained
	EE5	0.782	Retained
	EE6	0.749	Retained
	EE7	0.791	Retained
	EE8	0.702	Retained
	EE10	0.617	Retained
Employee performance	EP1	0.709	Retained
	EP2	0.728	Retained
	EP3	0.730	Retained
	EP4	0.727	Retained
	EP6	0.735	Retained
	EP7	0.706	Retained
	EP8	0.701	Retained
	EP9	0.726	Retained
	EP10	0.993	Retained
	KPI1	0.742	Retained
KPI-based performance appraisal	KPI2	0.782	Retained
	KPI3	0.737	Retained
	KPI4	0.532	Retained
	KPI5	0.604	Retained
	KPI6	0.604	Retained
	KPI7	0.739	Retained
	KPI8	0.693	Retained
	KPI9	0.722	Retained
	KPI10	0.672	Retained
	MW1	0.828	Retained
Meaningful work	MW2	0.820	Retained
	MW3	0.786	Retained
	MW4	0.732	Retained
	MW5	0.756	Retained
	MW6	0.751	Retained
	MW7	0.797	Retained
	MW8	0.755	Retained
	MW9	0.663	Retained
	MW10	0.710	Retained

Note: Standardized outer loadings are reported. EE9 (0.425) and EP5 (0.491) were dropped after sensitivity checks; other indicators below 0.70 were retained to preserve content coverage without compromising measurement quality

Source: Author's work (2026)

Appendix 6.

Internal consistency reliability and convergent validity

Construct	Cronbach's Alpha	rho_A	Composite Reliability	AVE
KPI-based performance appraisal	0.886	0.902	0.906	0.496
Meaningful work	0.924	0.925	0.936	0.596
Employee engagement	0.913	0.916	0.929	0.593
Employee performance	0.911	0.919	0.928	0.590

Note: Cronbach's alpha, rho_A, and Composite Reliability values above 0.70 indicate satisfactory internal consistency reliability. An AVE value of 0.50 or higher is commonly used as the benchmark for convergent validity. The KPI-Based Performance Appraisal construct had an AVE of 0.496 and was therefore interpreted cautiously in conjunction with its indicator-level sensitivity assessment and construct reliability

Source: Author's work (2026)

Appendix 7.

Heterotrait–Monotrait ratio (HTMT) for discriminant validity

Construct	KPI-based performance appraisal	Meaningful work	Employee engagement	Employee performance
KPI-based performance appraisal	—	0.770	0.795	0.724
Meaningful work	0.770	—	0.864	0.707
Employee engagement	0.795	0.864	—	0.811
Employee performance	0.724	0.707	0.811	—

Note: HTMT values below 0.90 indicate adequate discriminant validity

Source: Author's work (2026)

Appendix 8.

Inner collinearity assessment (VIF)

Endogenous construct	Predictor construct(s)	VIF	Assessment
Meaningful work	KPI-based performance appraisal	1.000	No critical collinearity
Employee engagement	KPI-based performance appraisal	2.019	No critical collinearity
Employee engagement	Meaningful work	2.019	No critical collinearity
Employee performance	KPI-based performance appraisal	2.346	No critical collinearity
Employee performance	Meaningful work	3.008	No critical collinearity
Employee performance	Employee engagement	3.126	No critical collinearity

Note: VIF values below 5.0 indicate that critical multicollinearity is not present. Values below 3.3 are also considered a more conservative diagnostic criterion

Source: Author's work (2026)

Appendix 9.

Coefficient of determination (R^2)

Endogenous construct	R^2	Adjusted R^2	Interpretation
Meaningful work	0.505	0.502	Moderate
Employee engagement	0.680	0.677	Moderate
Employee performance	0.582	0.576	Moderate

Note: R^2 values of approximately 0.75, 0.50, and 0.25 are interpreted as substantial, moderate, and weak explanatory power, respectively

Source: Author's work (2026)

Appendix 10.

Effect size (f^2)

Structural path	f^2	Effect size
KPI-based performance appraisal → meaningful work	1.019	Large
KPI-based performance appraisal → employee engagement	0.162	Medium
Meaningful work → employee engagement	0.490	Large
KPI-based performance appraisal → employee performance	0.054	Small
Meaningful work → employee performance	0.012	Negligible
Employee engagement → employee performance	0.171	Medium

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Note: f^2 values of 0.02, 0.15, and 0.35 are interpreted as small, medium, and large effects, respectively, while values below 0.02 indicate a negligible effect

Source: Author's work (2026)

Appendix 11.

PLSpredict results

Endogenous construct	Q ² predict	RMSE	MAE	Interpretation
Meaningful work	0.495	0.718	0.552	Predictive relevance
Employee engagement	0.517	0.702	0.536	Predictive relevance
Employee performance	0.424	0.765	0.603	Predictive relevance

Note: Positive Q²predict values indicate predictive relevance. RMSE and MAE represent prediction errors, with lower values indicating smaller errors

Source: Author's work (2026)

Appendix 12.

Results of total indirect effects

Total Indirect Path	O	STDEV	T	p	95% BCa CI
KPI-BPA → employee engagement	0.449	0.053	8.508	< .001	[0.345, 0.553]
KPI-BPA → employee performance	0.468	0.061	7.638	< .001	[0.349, 0.591]
Meaningful work → employee performance	0.289	0.051	5.666	< .001	[0.196, 0.397]

Note. O represents the Original Sample estimate of the standardised total indirect effect. STDEV represents the bootstrap standard error, calculated as the standard deviation of the bootstrap estimates. T represents the bootstrapped t-statistic, and p represents the bootstrapped p-value. BCa CI represents the 95% bias-corrected and accelerated confidence interval. Results were obtained from SmartPLS 4 using 5,000 bootstrap subsamples

Source: Author's work (2026)

Appendix 13.

Results of total effects

Structural Path	O	STDEV	T	p	95% BCa CI
Employee engagement → Employee performance	0.478	0.070	6.815	< .001	[0.333, 0.610]
KPI-BPA → employee engagement	0.701	0.035	19.833	< .001	[0.622, 0.762]
KPI-BPA → employee performance	0.674	0.041	16.273	< .001	[0.581, 0.745]
KPI-BPA → meaningful work	0.741	0.033	22.482	< .001	[0.663, 0.795]
meaningful work → employee engagement	0.606	0.062	9.747	< .001	[0.482, 0.726]
Meaningful work → employee performance	0.469	0.076	6.160	< .001	[0.304, 0.612]

Note. O represents the Original Sample estimate of the standardised total effect. STDEV represents the bootstrap standard error, calculated as the standard deviation of the bootstrap estimates. T represents the bootstrapped t-statistic, and p represents the bootstrapped p-value. BCa CI represents the 95% bias-corrected and accelerated confidence interval. Results were obtained from SmartPLS 4 using 5,000 bootstrap subsamples

Source: Author's work (2026)

Appendix 14.

Comparison of sequential and parallel mediation models

Structural / indirect path	Sequential model (β)	Parallel model (β)
KPI-BPA $\rightarrow$ MW	0.741***	0.741***
KPI-BPA $\rightarrow$ EE	0.253***	0.701***
KPI-BPA $\rightarrow$ EP	0.206**	0.204**
MW $\rightarrow$ EE	0.606***	—
MW $\rightarrow$ EP	0.180*	0.183*
EE $\rightarrow$ EP	0.478***	0.478***
KPI-BPA $\rightarrow$ MW $\rightarrow$ EP	0.133*	0.135*
KPI-BPA $\rightarrow$ EE $\rightarrow$ EP	0.121**	0.335***
KPI-BPA $\rightarrow$ MW $\rightarrow$ EE $\rightarrow$ EP	0.214***	—
Total indirect effect: KPI-BPA $\rightarrow$ EP	0.468*	0.470*

Note: * $p < .05$; ** $p < .01$; *** $p < .001$. The parallel model excludes the MW $\rightarrow$ EE path and therefore does not estimate the sequential indirect pathway through MW and EE

Source: Author's work (2026)