



The Influence of Work-Life Balance, Work Innovation, Digital Work Environment, and Employee Engagement on the Performance of Generation Z Employees at PC Partner Company in Muka Kuning, Batam

Azra Khairia, Acca Maysa Sitio, Wanda Safitri*, Amanda, Aisyah Livi November, Intan Ayu Wandira

Universitas Riau Kepulauan, Batam, Indonesia

ARTICLE INFORMATION

Received 18 May 2026

Received in revised form 1 July 2026

Available Online 6 July 2026

KEYWORDS

work-life balance,
work innovation,
digital work environment,
employee engagement,
employee performance

CORRESPONDENCE

Phone:

E-mail: azrakhairia@gmail.com

ABSTRACT

The rapid growth of Indonesia's electronics manufacturing industry, particularly in the Muka Kuning industrial area of Batam, has increased the demand for adaptive and high-performing employees, especially among the Generation Z workforce that now dominates the labor market; this condition raises the need to examine the factors that influence employee performance. This study aims to analyze the effect of Work-Life Balance, Work Innovation, Digital Work Environment, and Employee Engagement on the Performance of Generation Z Employees at PC Partner Company in Muka Kuning, Batam. The research employed a descriptive quantitative approach with multiple linear regression analysis. The population consisted of all 30 Generation Z employees at PC Partner, selected through a saturated sampling method. Primary data were collected using a Likert-scale questionnaire and processed with SPSS. The partial test (t-test) results showed that Work-Life Balance ($t = 4.487$), Work Innovation ($t = 5.384$), Digital Work Environment ($t = 5.797$), and Employee Engagement ($t = 8.458$) each had a positive and significant effect on Employee Performance. The simultaneous test (F-test) produced an F-value of 16.363 > F-table 2.76, indicating that all independent variables jointly had a significant effect on Employee Performance. The coefficient of determination (Adjusted R^2) of 0.679 indicated that 67.9% of the variance in Employee Performance could be explained by these four variables.

1. INTRODUCTION

In recent years, the electronic manufacturing industry in Indonesia has experienced significant growth, particularly in the Batam industrial area, which is recognized as one of the country's largest electronics manufacturing hubs. Muka Kuning has become a strategic industrial zone for numerous national and multinational manufacturing companies. One of the companies operating in this area is PC Partner, a computer hardware manufacturing company that integrates modern technology and digitally driven work systems into its production activities.

The increasingly competitive business environment requires companies to possess high-quality human resources who are adaptive, innovative, and capable of performing optimally in response to technological advancements and organizational demands. In this context, employee performance has become a critical factor in determining a company's ability to maintain productivity and sustain its competitive advantage. The high level of work pressure in the modern manufacturing industry

encourages organizations to understand the various factors influencing employee performance, particularly among Generation Z employees, who are now becoming the dominant workforce.

Generation Z refers to individuals born between 1997 and 2012 who have grown up alongside rapid digital technological development. Compared to previous generations, Generation Z is generally more open to change, quicker to adapt to new technologies, and places greater importance on flexibility and maintaining a healthy balance between personal life and work. According to Hakim (2024), Generation Z considers work-life balance to be one of the primary determinants of job satisfaction and organizational loyalty.

In addition to work-life balance, work innovation has emerged as another important factor influencing the performance of Generation Z employees. Employees who are capable of generating new ideas, developing creative solutions, and implementing improvements in work processes are considered to contribute positively to organizational productivity. Janssen (2000) explains that innovative work behavior encompasses the

processes of idea generation, idea promotion, and idea implementation in everyday work activities.

The ongoing digital transformation across industries has also encouraged organizations to establish digital work environments that support employee effectiveness and efficiency. A digital work environment extends beyond the use of technological devices; it also includes ease of access to information, digital communication systems, and organizational support for the effective utilization of technology in daily work. For Generation Z employees, who are highly familiar with digital technology, the quality of the digital work environment significantly influences their workplace comfort and productivity.

Furthermore, employee engagement plays a crucial role in enhancing employee performance. Employees who possess a strong emotional attachment to their organization tend to demonstrate greater enthusiasm, dedication, and loyalty. High levels of employee engagement can strengthen work motivation and encourage employees to contribute more effectively toward achieving organizational goals. According to Schaufeli and Bakker (2004), employee engagement is characterized by three dimensions: vigor, dedication, and absorption in work activities.

Based on preliminary observations conducted at PC Partner in the Muka Kuning industrial area of Batam, fluctuations in the productivity of Generation Z employees were identified. While some employees consistently demonstrated strong job performance, several challenges were observed, including work-related fatigue, difficulties in maintaining work-life balance, and varying levels of employee engagement among individuals. These findings indicate the need for further investigation to identify the factors that can enhance the performance of Generation Z employees within the company.

Therefore, this study aims to examine the influence of work-life balance, work innovation, digital work environment, and employee engagement on the performance of Generation Z employees at PC Partner in Muka Kuning, Batam, both partially and simultaneously.

2. STUDY LITERATURE

2.1. Work-Life Balance

Fisher et al. (2009) define work-life balance as the degree to which individuals are satisfied with their ability to allocate time, energy, and commitment between work and non-work aspects of their lives. Fisher et al.'s (2009) model consists of four dimensions: (1) Work Interference with Personal Life (WIPL), (2) Personal Life Enhancement of Work (PLEW), and (3) Work Enhancement of Personal Life (WEPL). Gaur and Gupta (2024) emphasize that an effective work-life balance significantly enhances employee engagement and ultimately contributes to optimal employee performance.

2.2. Work Innovation

Janssen (2000) defines work innovation as the intentional creation, introduction, and implementation of new and useful ideas within a job, work group, or organization. Scott and Bruce (1994) identify three stages of innovative work behavior: idea generation, idea promotion, and idea realization. Innovative employees have been shown to exhibit higher levels of work engagement and make greater contributions to organizational efficiency and competitiveness (Ayanponle et al., 2024).

2.3. Digital Work Environment

Dery et al. (2017) define the digital work environment as an ecosystem comprising technology, digital infrastructure, and organizational capabilities that collectively shape how employees work and collaborate in the digital era. Baptista et al. (2020)

emphasize the socio-technical dimensions of the digital work environment, including technology accessibility, usability, and organizational support. For Generation Z, who have grown up alongside digital technology, the quality of the digital work environment directly influences productivity and job satisfaction (Rumani et al., 2023).

2.4. Employee Engagement

Schaufeli and Bakker (2004) define employee engagement as a positive motivational state characterized by vigor, dedication, and absorption. This conceptual model was further developed into the Utrecht Work Engagement Scale (UWES), which has been extensively validated across different countries and organizational contexts. Arshad and Ming (2024) conclude that engaged employees demonstrate higher task performance, greater job satisfaction, and stronger organizational citizenship behavior.

2.5. Employee Performance

Mangkunegara (2009) defines employee performance as the quality and quantity of work achieved by an employee in carrying out assigned responsibilities. Mathis and Jackson (2006) further identify timeliness, attendance, and teamwork as comprehensive indicators of employee performance. In the context of Generation Z, take-home pay and work-life balance have been identified as dominant predictors of employee performance (Hakim, 2024).

2.6. Conceptual Framework and Hypotheses

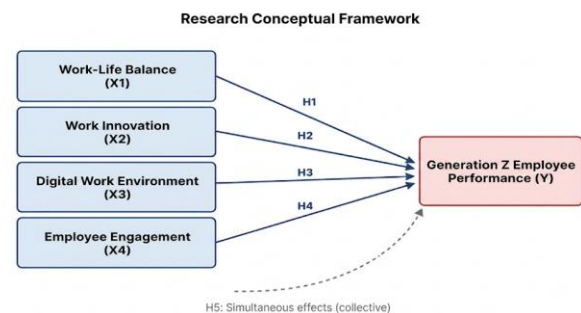


Figure 1. Research Conceptual Framework

Based on the literature review presented above, the hypotheses of this study are as follows:

- H1: Work-Life Balance has a positive and significant effect on the performance of Generation Z employees.
- H2: Work Innovation has a positive and significant effect on the performance of Generation Z employees.
- H3: Digital Work Environment has a positive and significant effect on the performance of Generation Z employees.
- H4: Employee Engagement has a positive and significant effect on the performance of Generation Z employees.
- H5: Work-Life Balance, Work Innovation, Digital Work Environment, and Employee Engagement simultaneously have a positive and significant effect on the performance of Generation Z employees.

3. METHODOLOGY

This study employed a descriptive quantitative approach with a causal research design. The population consisted of all Generation Z employees (born between 1997 and 2012) working at PC Partner in the Muka Kuning industrial area, Batam, totaling 30 employees. Given the relatively small population size, a saturated sampling (total sampling) technique was applied, whereby all members of the population were included as research respondents.

Primary data were collected using a closed-ended questionnaire based on a five-point Likert scale (1–5), with each variable measured using six statement items. Work-Life Balance (X1) was measured using the dimensions of Work Interference with Personal Life (WIPL), Personal Life Enhancement of Work (PLEW), and Work Enhancement of Personal Life (WEPL) developed by Fisher et al. (2009). Work Innovation (X2) was assessed through the dimensions of idea generation, idea promotion, and idea realization (Janssen, 2000; Scott & Bruce, 1994). Digital Work Environment (X3) was measured using indicators of technology accessibility, usability, and organizational support (Dery et al., 2017; Baptista et al., 2020). Employee Engagement (X4) was measured through the dimensions of vigor, dedication, and absorption (Schaufeli & Bakker, 2004). Employee Performance (Y) was assessed based on the quality and quantity of work output, timeliness and attendance, and teamwork and work initiative (Mangkunegara, 2009; Mathis & Jackson, 2006).

Data analysis was conducted using the latest version of SPSS software and included validity testing (Pearson correlation), reliability testing (Cronbach's Alpha), classical assumption tests (normality, multicollinearity, and heteroscedasticity), multiple linear regression analysis, partial significance testing (t-test), simultaneous significance testing (F-test), and the coefficient of determination (R^2).

4. RESULTS AND DISCUSSION

4.1. Respondent Characteristics

The respondents in this study consisted of 30 Generation Z employees occupying various job positions, including operators (40%), administrative staff (20%), supervisors (10%), quality control personnel (13.3%), and other positions (16.7%). The mean scores for the study variables were 24.13 for Work-Life Balance, 23.13 for Work Innovation, 22.23 for Digital Work Environment, 23.27 for Employee Engagement, and 22.40 for Employee Performance, out of a maximum possible score of 30.

4.2. Validity and Reliability Tests

The validity test was conducted by comparing the calculated correlation coefficient (r -value) with the critical r -table value for a sample size of $n = 30$ ($r = 0.361$ at $\alpha = 0.05$). The results indicated that all 30 questionnaire items had Pearson correlation coefficients greater than the critical r -table value, confirming that all measurement items were valid. Furthermore, all variables demonstrated satisfactory reliability, with Cronbach's Alpha values exceeding 0.60, indicating that the research instrument was internally consistent and reliable.

Table 1. Validity Test Results

Variable	Number of Items	Criteria	Remarks
Work-Life Balance (X1)	6	r -calculated > 0.361	Valid
Work Innovation (X2)	6	r -calculated > 0.361	Valid
Digital Work Environment (X3)	6	r -calculated > 0.361	Valid
Employee Engagement (X4)	6	r -calculated > 0.361	Valid
Employee Performance (Y)	6	r -calculated > 0.361	Valid

Table 2. Reliability Test Results

Variable	Cronbach's Alpha	Standard	Remarks
Work-Life Balance (X1)	> 0.60	0.60	Reliable
Work Innovation (X2)	> 0.60	0.60	Reliable
Digital Work Environment (X3)	> 0.60	0.60	Reliable
Employee Engagement (X4)	> 0.60	0.60	Reliable
Employee Performance (Y)	> 0.60	0.60	Reliable

4.3. Classical Assumption Tests

The normality test, conducted using the One-Sample Kolmogorov–Smirnov Test, indicated that the residuals were normally distributed, as evidenced by an Asymp. Sig. value greater than 0.05. The multicollinearity test showed that the Variance Inflation Factor (VIF) values for Work-Life Balance (4.882), Work Innovation (7.479), Digital Work Environment (3.696), and Employee Engagement (7.050) were all below the acceptable threshold of 10, indicating the absence of serious multicollinearity. The heteroscedasticity test, based on the scatterplot analysis, revealed that the residuals were randomly dispersed without forming any discernible pattern, indicating that heteroscedasticity was not present. Therefore, all classical regression assumptions were satisfied.

Table 3. Normality Test Results

Method	Asymp. Sig. (2-tailed)	Standard	Remarks
Kolmogorov-Smirnov	> 0.05	0.05	Data is normally distributed

Table 4. Multicollinearity Test Results

Variable	VIF Value	Standard	Remarks
Work-Life Balance (X1)	4.882	< 10	No multicollinearity

Work Innovation (X2)	7.479	< 10	No multicollinearity
Digital Work Environment (X3)	3.696	< 10	No multicollinearity
Employee Engagement (X4)	7.050	< 10	No multicollinearity

Table 5. Heteroscedasticity Test Results

Variable	Coefficient B	Sig.	Remarks
(Constant)	5.566	0.002	-
WLB	-0.034	0.752	No heteroscedasticity
IK	0.030	0.831	No heteroscedasticity
LKD	0.040	0.748	No heteroscedasticity
EE	-0.180	0.283	No heteroscedasticity

4.4. Partial Test (t-Test)

The t-test was conducted to determine the partial effect of each independent variable on the dependent variable. The t-table value at $\alpha = 0.05$ with $df = 28$ is 2.048. The decision rule is as follows: if the calculated t-value (t-count) is greater than the t-table value and the significance value (Sig.) is less than 0.05, then the variable has a significant effect.

Table 6. t-Test Results (Partial Significance Test)

Variable	Coefficient B	t-calculated	Sig.	Remarks
(Constant)	1.037	0.370	0.714	-
Work-Life Balance (X1)	0.092	4.487	0.000	Significant Effect
Work Innovation (X2)	-0.116	5.384	0.000	Significant Effect
Digital Work Environment (X3)	0.111	5.797	0.000	Significant Effect
Employee Engagement (X4)	0.831	8.458	0.000	Significant Effect

Based on Table 6, the results of the t-test can be explained as follows:

1. Work-Life Balance (X1) has a calculated t-value of 4.487 > t-table value of 2.048, with a significance value of $0.000 < 0.05$. Therefore, H_0 is rejected and H_1 is accepted, indicating that Work-Life Balance has a positive and significant effect on the performance of Generation Z employees. This finding is consistent with Hakim (2024), who found that Generation Z employees with a good work-life balance tend to demonstrate more optimal performance.
2. Work Innovation (X2) has a calculated t-value of 5.384 > t-table value of 2.048, with a significance value of $0.000 < 0.05$. H_0 is rejected and H_2 is accepted, meaning that Work Innovation has a positive and significant effect on the performance of Generation Z employees. This result supports Janssen (2000), who stated that innovative behavior is an important predictor of individual performance in modern work environments.
3. Digital Work Environment (X3) has a calculated t-value of 5.797 > t-table value of 2.048, with a significance value of

$0.000 < 0.05$. H_0 is rejected and H_3 is accepted, leading to the conclusion that the Digital Work Environment has a positive and significant effect on the performance of Generation Z employees. This is in line with Dery et al. (2017), who emphasized that an effective digital work environment supports employee productivity and overall work experience.

4. Employee Engagement (X4) has a calculated t-value of 8.458 > t-table value of 2.048, with a significance value of $0.000 < 0.05$. H_0 is rejected and H_4 is accepted, indicating that Employee Engagement has a positive and significant effect on the performance of Generation Z employees. Employee Engagement has the strongest influence among the four variables, confirming Arshad and Ming (2024), who stated that engaged employees demonstrate significantly higher performance.

4.5. Simultaneous Test (F-Test)

The F-test was conducted to examine the simultaneous effect of all independent variables on the dependent variable. The F-table value at $\alpha = 0.05$ with $df_1 = 4$ and $df_2 = 25$ is 2.76.

Table 7. Simultaneous Test Results (F-Test) – ANOVA

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	588.442	4	147.110	16.363	< 0.001
Residual	224.758	25	8.990		
Total	813.200	29			

Based on Table 7, the calculated F-value is $16.363 > F$ -table value of 2.76, with a significance value of $0.000 < 0.05$. This indicates that H_0 is rejected and H_5 is accepted. Therefore, it can be concluded that Work-Life Balance (X1), Work Innovation (X2), Digital Work Environment (X3), and Employee Engagement (X4) simultaneously have a positive and significant effect on the performance of Generation Z employees (Y) at PC Partner Company in Muka Kuning, Batam.

4.6. Coefficient of Determination Test (R^2)

The coefficient of determination analysis aims to measure the extent to which the independent variables contribute to the dependent variable. The coefficient of determination value ranges between zero and one. A small R^2 value indicates that the ability of the independent variables to explain the variation in the dependent variable is very limited.

Table 8. Model Summary (Coefficient of Determination)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.851	0.724	0.679	2.998

The Adjusted R Square value of 0.679 (67.9%) indicates that Work-Life Balance, Work Innovation, Digital Work Environment, and Employee Engagement collectively explain 67.9% of the variation in Generation Z employee performance at PC Partner Company. The remaining 32.1% is explained by other variables not included in this study, such as compensation, leadership style, or organizational culture.

4.7. Discussion

The significant effect of Work-Life Balance on employee performance is consistent with Gaur and Gupta (2024), who demonstrated that work-life balance significantly influences employee engagement, which in turn enhances performance. For Generation Z employees at PC Partner, who operate in a manufacturing environment with demanding working hours, maintaining a balance between work demands and personal life is a crucial factor.

The positive effect of Work Innovation on performance aligns with the findings of Ayanponle et al. (2024), who reported that innovative human resource strategies significantly contribute to workforce efficiency. Generation Z, as a generation accustomed to rapid technological change, has a natural tendency to innovate and seek new ways of completing tasks.

The significance of the Digital Work Environment reinforces the argument of Rumani et al. (2023), who stated that workplace conditions—particularly digital aspects—directly influence employee performance. In contrast to Hakim (2024), who found no significant effect of the workplace environment in a general sample, this study reveals a significant effect among Generation Z employees in a technology-driven industrial setting such as PC Partner, where the accessibility and quality of digital tools are critical to production efficiency.

Employee Engagement proved to be the strongest predictor of employee performance ($r = 0.848$; $t = 8.458$). This finding is consistent with the meta-analysis by Arshad and Ming (2024), which shows that engaged employees exhibit significantly higher productivity, job satisfaction, and organizational citizenship behavior compared to non-engaged employees. Faisal (2024) also emphasizes employee engagement as a key mediator between various organizational factors and employee productivity.

5. CONCLUSION

Based on the results of the data analysis and discussion presented above, this study concludes that the four proposed variables successfully address the research objectives, namely to analyze the effect of Work-Life Balance, Work Innovation, Digital Work Environment, and Employee Engagement on the performance of Generation Z employees at PC Partner Company in Muka Kuning, Batam, both partially and simultaneously.

Partially, Work-Life Balance was found to have a positive and significant effect on Generation Z employee performance ($t = 4.487$; $\text{sig.} = 0.000$), followed by Work Innovation, which also showed a positive and significant effect ($t = 5.384$; $\text{sig.} = 0.000$). Similarly, the Digital Work Environment was proven to have a positive and significant effect on employee performance ($t = 5.797$; $\text{sig.} = 0.000$), while Employee Engagement demonstrated the strongest positive and significant influence among the four variables ($t = 8.458$; $\text{sig.} = 0.000$).

Simultaneously, the four variables—Work-Life Balance, Work Innovation, Digital Work Environment, and Employee Engagement—were found to have a positive and significant effect on the performance of Generation Z employees at PC Partner Company in Muka Kuning, Batam ($F = 16.363$; $\text{sig.} = 0.000$), with an explanatory power of 67.9% (Adjusted $R^2 = 0.679$). These findings confirm that work-life balance, innovation capability, digital work environment quality, and employee engagement are collectively important factors that organizations should consider in their efforts to improve Generation Z employee performance.

References

- Arshad, M. A. B., & Ming, P. N. (2024). An overview of employee engagement and its relationship to employee performance in the context of human resource development. *International Journal of Academic Research in Business and Social Sciences (IJARBSS)*.
- Ayanponle, L. O., Awonuga, K. F., Asuzu, O. F., Daraojimba, R. E., Elufioye, O. A., & Daraojimba, O. D. (2024). A review of innovative HR strategies in enhancing workforce efficiency in the US. *International Journal of Science and Research Archive (IJSRA)*.
- Baptista, J., Stein, M. K., Klein, S., Watson-Manheim, M. B., & Lee, J. (2020). Digital work and organisational transformation: Emergent digital-human work configurations in modern organisations. *Journal of Strategic Information Systems*.
- Dery, K., Sebastian, I. M., & van der Meulen, N. (2017). The digital workplace is key to digital innovation. *MIS Quarterly Executive*, 16(2), 135–152.
- Faisal, A. (2024). The effect of work-life balance, organizational culture, career path, and key performance indicators on productivity through employee engagement. *Greenation International Journal of Law and Social Sciences (GIJLSS)*.
- Fisher, G. G., Bulger, C. A., & Smith, C. S. (2009). Beyond work and family: A measure of work/nonwork interference and enhancement. *Journal of Occupational Health Psychology*, 14(4), 441–456.
- Gaur, A., & Gupta, D. (2024). Enhancing employee engagement: Unveiling the impact of quality of work-life balance and corporate culture through literature review. *International Journal for Multidisciplinary Research (IJFMR)*.
- Hakim, M. M. (2024). Work-life balance, take-home pay, and workplace environment: Which one has the most influence on Gen Z employee performance? *Jurnal Sosial Humaniora dan Pendidikan (JSHP)*.
- Janssen, O. (2000). Job demands, perceptions of effort-reward fairness, and innovative work behaviour. *Journal of Occupational and Organizational Psychology*, 73(3), 287–302.
- Mangkunegara, A. A. A. P. (2009). *Manajemen sumber daya manusia perusahaan*. PT Remaja Rosdakarya.
- Mathis, R. L., & Jackson, J. H. (2006). *Human resource management* (10th ed.). Salemba Empat.
- Rumani, D. D., Wibowo, U. L. N., Rusdyansyah, A., & Kuntadi, C. (2023). The influence of work environment, pay satisfaction, and job stress on employee performance: A literature review. *Journal of Accounting and Finance Management (JAFM)*, 4(1).
- Schaufeli, W. B., & Bakker, A. B. (2004). Job demands, job resources, and their relationship with burnout and engagement: A multi-sample study. *Journal of Organizational Behavior*, 25(3), 293–315.
- Scott, S. G., & Bruce, R. A. (1994). Determinants of innovative behavior: A path model of individual innovation in the workplace. *Academy of Management Journal*, 37(3), 580–607.