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The Impact of Flexible Working Arrangements on IT Employee Productivity: The Mediating Role of Job Quality

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ABSTRACT

The implementation of flexible working arrangements (FWA) has become increasingly prevalent in the information technology (IT) sector, particularly amid growing demand for flexibility in digital work environments. However, empirical findings on the effect of FWA on employee productivity remain inconsistent, indicating the need for further investigation that incorporates mediating factors. This study aims to analyze the effect of flexible working arrangements on IT employee productivity, with job quality serving as a mediating variable. This study employs a quantitative approach using a survey method. Primary data were collected through an online questionnaire distributed to IT employees in Indonesia with experience working under flexible work systems. The sampling technique combined convenience sampling and purposive sampling, with the number of respondents meeting the analytical requirements for PLS-SEM. Data were analyzed using Partial Least Squares–Structural Equation Modeling (PLS-SEM) with the assistance of SmartPLS 4. The results indicate that flexible working arrangements have a positive and significant effect on both job quality and IT employee productivity. Furthermore, job quality is also found to have a positive and significant effect on employee productivity. The indirect effect analysis reveals that job quality partially mediates the relationship between flexible working arrangements and employee productivity. These findings provide theoretical implications by reinforcing the job demands–resources perspective in the context of flexible work, as well as practical implications for organizations, particularly in the IT sector, in designing flexible work policies that not only enhance flexibility but also improve job quality and employee productivity.

INTRODUCTION

The COVID-19 pandemic has driven significant changes in how organizations manage their workforce. One of the most notable changes is the adoption of Flexible Working Arrangement (FWA), a work arrangement that gives employees flexibility in terms of working time and location. Initially adopted as a temporary solution to reduce physical interaction, FWA has since evolved into a long-term work practice adopted across various sectors,

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including the information technology (IT) sector, which relies heavily on digital technology and knowledge-based work (Allen et al., 2013; Bloom et al., 2024).

Although FWA has become increasingly common, its implications for employee productivity remain debated in the literature. Productivity does not only reflect the quantity of output produced, but also encompasses efficiency, effectiveness, and the sustainability of work quality. Some studies suggest that work flexibility can enhance productivity through greater autonomy and improved work-life balance (Çivilidağ & Durmaz, 2024; Hashmi et al., 2023). However, other studies found that FWA can also reduce productivity due to decreased face-to-face communication, increased stress, and moral hazard risks (Atti et al., 2022). These inconsistent findings indicate that the relationship between FWA and productivity is not always direct, but may be mediated by other factors that have not been widely examined.

To explain these differences, a number of studies have begun to examine the role of mediating variables in the relationship between FWA and productivity, such as work engagement (Zappalà et al., 2024), job satisfaction (Çivilidağ & Durmaz, 2024), and work–life balance (Hashmi et al., 2023). However, three research gaps remain inadequately addressed. First, from a theoretical perspective, job quality as a multidimensional concept encompassing autonomy, workload, work environment, job security, career development, and work-life balance is rarely positioned as a mediating mechanism that explains how work flexibility affects productivity. Most prior studies have treated job quality either as an independent variable or have focused on a single dimension in isolation, without examining work quality comprehensively within an integrated model (van der Lippe et al., 2024). Second, from an empirical perspective, the majority of studies on the relationship between FWA and productivity have been conducted in developed countries, such as those in Europe, the United States, and Singapore (Bloom et al., 2024; Wang & Dong, 2024), while empirical evidence from developing country contexts, particularly Indonesia, remains very limited. Differences in work culture, digital infrastructure, and labor regulations between developed and developing countries may lead to significantly different results. Third, from a contextual perspective, the IT sector has unique job characteristics including high creativity demands, project-based work cycles, and reliance on virtual collaboration that distinguish it from other sectors and require a separate examination of the FWA mechanism in relation to productivity.

Theoretically, job quality plays an important role in shaping employees' work experience and performance. Within the Job Demands–Resources (JD-R) Theory framework, work flexibility can be seen as a job resource that enhances motivation and reduces the negative impact of job demands, thereby potentially improving job quality and productivity (Adiarti & Dimyati, 2021). When work flexibility improves aspects of job quality such as

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autonomy, work-life balance, and intrinsic satisfaction, those improvements in work quality can then drive higher productivity. However, empirical evidence that examines job quality comprehensively as a mediator in the relationship between FWA and productivity particularly in the IT sector in Indonesia remains very limited (Adiarti & Dimyati, 2021).

Based on these research gaps, this study aims to analyze the effect of Flexible Working Arrangement on IT employee productivity with job quality as a mediating variable. Specifically, this study makes three key contributions. First, theoretically, this study extends the application of JD-R Theory by showing that job quality serves as a mediating variable that explains how work flexibility can enhance productivity a relationship that has rarely been examined before. Second, empirically, this study provides evidence from a developing country context, specifically the IT sector in Indonesia, which has a work culture and digital infrastructure that differ from the developed countries that have been the focus of most prior research. Third, practically, the findings of this study are expected to serve as a basis for organizations in designing flexible work policies that focus not only on flexibility, but also on improving job quality as a strategy for achieving sustainable productivity.

LITERATURE REVIEW

Flexible Working Arrangement and Employee Productivity

Flexible Working Arrangement (FWA) has become a key work practice in modern organizations, particularly in knowledge-based sectors such as information technology. FWA refers to non-conventional work arrangements that give employees flexibility in managing their working time and/or location while remaining focused on achieving organizational goals (Armstrong & Taylor, 2015; Boccoli et al., 2024; Lauring & Jonasson, 2025). Common forms of FWA implementation include flextime, flexplace or remote work, and hybrid work that combines office-based and remote work (Berkery et al., 2024; van der Lippe et al., 2024; Wöhner, 2023).

In the IT sector context, FWA is considered highly relevant because most work activities are digital in nature and can be carried out remotely with the support of communication technology. Bloom et al. (2024) found that hybrid work patterns provide significant benefits for creative team-based work, including software engineering, by improving job satisfaction and reducing turnover without lowering performance. This suggests that work flexibility is not only technically feasible, but also has the potential to enhance employee productivity.

However, the relationship between FWA and employee productivity has not shown fully consistent results. Work productivity is not only measured by the quantity of output, but

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also covers the quality of results, efficiency in resource use, and the effectiveness of achieving targets (Komariyah & Laelawati, 2023; Mutiara Sopari et al., 2024). Some studies indicate that work flexibility can enhance productivity through greater autonomy and better work rhythms. On the other hand, other studies highlight potential challenges of FWA, such as reduced direct supervision, decreased communication intensity, and increased psychological burden from increasingly blurred boundaries between work and personal life. These inconsistent findings suggest that the effect of FWA on productivity is likely not direct and is influenced by other factors.

Job Quality and Employee Productivity

Job quality is a multidimensional concept that reflects the extent to which a job has a positive impact on workers' well-being, satisfaction, and motivation (Gatta et al., 2025). The concept encompasses intrinsic aspects of work, such as autonomy and skill variety, as well as extrinsic aspects such as fair wages, job security, work environment, and career development opportunities (Dias et al., 2023; Holman & McClelland, 2011; Warhurst et al., 2025). Job quality can be assessed through a subjective approach, which evaluates workers' perceptions and experiences, or through an objective approach that measures job characteristics in a measurable way (International Labour Organization (ILO), 2013).

Various studies indicate that job quality has a positive relationship with employee productivity. High-quality jobs tend to increase intrinsic motivation, work commitment, and value-added productive behaviors such as initiative and innovation (Kaviya et al., 2025; Sivapragasam & Raya, 2014). Safe and supportive work environments, work-life balance, and skill development opportunities have also been shown to contribute to improvements in output and work quality (Fernández Puente & Sánchez-Sánchez, 2023; Picatoste et al., 2021).

Nevertheless, most prior research has focused on traditional sectors, such as manufacturing or physical production-based industries, so empirical evidence in knowledge-based sectors such as IT remains limited (Kaviya et al., 2025; Muliati & Susiana, 2023). In addition, many studies have only examined one or two dimensions of job quality in isolation, without assessing work quality in a comprehensive manner. This opens the door for further research that examines the role of job quality more thoroughly in the context of digital work.

Job Quality as a Mediating Variable

A number of studies suggest that job quality has the potential to serve as an important mechanism explaining how organizational policies affect employee productivity (Darni & Febriansyah, 2024). Work flexibility, as part of modern job design, can improve aspects of job quality such as work-life balance, autonomy, and intrinsic satisfaction. These improvements

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in job quality can in turn encourage employees to work more efficiently, effectively, and innovatively (Nisa Trisna Natania, 2025).

However, the role of job quality as a mediating variable in the relationship between Flexible Working Arrangement and employee productivity has rarely been tested empirically, particularly in an integrated model. Some studies found that the effect of work policies on productivity becomes weak or insignificant when certain mediating variables are included, which suggests the existence of mechanisms that have not been fully explained (Kaviya et al., 2025). Furthermore, studies that specifically examine the relationship between FWA, job quality, and productivity in the IT sector in Indonesia remain very limited.

Based on these research gaps, this study positions job quality as a mediating variable to explain the effect of Flexible Working Arrangement on IT employee productivity. This approach is expected to provide a more comprehensive understanding of the mechanism by which work flexibility affects productivity, while also expanding the empirical evidence in the context of knowledge-based work in Indonesia.

Hypotheses Development

In addition to the indirect effect through job quality, Flexible Working Arrangement is also expected to have a direct effect on employee productivity. Work flexibility allows employees to work at their optimal pace, reduce fatigue, and improve work efficiency, particularly in knowledge-based sectors such as information technology (Bloom et al., 2024; Harrop et al., 2025; Zappalà et al., 2024). Therefore, the following hypothesis is proposed:

H1: Flexible Working Arrangement (FWA) has a positive effect on Employee Productivity.

Based on the prior literature, Flexible Working Arrangement gives employees a greater level of autonomy in managing their working time and location, which can improve the quality of their work experience. This flexibility allows employees to balance work demands and personal life more effectively, which ultimately improves their perception of job quality (Çivilidağ & Durmaz, 2024; Hashmi et al., 2023). Therefore, the following hypothesis is proposed:

H2: Flexible Working Arrangement (FWA) has a positive effect on Employee Job Quality.

Furthermore, improvements in job quality characterized by work autonomy, satisfaction, and a supportive work environment are believed to enhance employee motivation and performance. Employees with high job quality tend to show higher productivity (Adiwijaya, 2023; Nisa Trisna Natania, 2025). Therefore, the following hypothesis is proposed:

H3: Job Quality has a positive effect on Employee Productivity.

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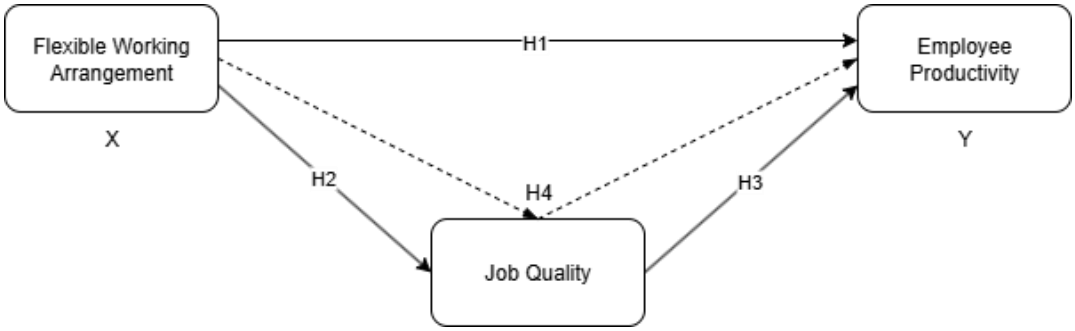
Moreover, since Flexible Working Arrangement can improve job quality, and job quality affects productivity, job quality is expected to serve as a mediating variable in this relationship (Harrop et al., 2025; Hartner-Tiefenthaler et al., 2023). Therefore, the following hypothesis is proposed:

H4: Job Quality mediates the effect of Flexible Working Arrangement (FWA) on Employee Productivity.

Figure 1. Research Conceptual Framework



METHODS

Research Design and Data Sources

This study used a quantitative approach with a cross-sectional design, in which data were collected at a single point in time without repeated measurements in subsequent periods. A survey method was used as the primary data collection method. The data consisted of primary and secondary data. Primary data were obtained by distributing questionnaires to employees working in the field of Information Technology (IT) at companies in Indonesia. The questionnaire was designed using a five-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree), to measure the variables of Flexible Working Arrangement (FWA), job quality, and employee productivity.

Secondary data were obtained from various literature sources, including academic journals, textbooks, and official publications from organizations related to labor affairs, such as the International Labour Organization (ILO) and Eurofound. Secondary data were used to strengthen the theoretical foundation, support the selection of research indicators, and compare the results with findings from prior studies.

Operationalization of Variables

This study consists of three variables: Flexible Working Arrangement (FWA) as the independent variable, job quality as the mediating variable, and employee productivity as the

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dependent variable. Each variable was measured through several dimensions and indicators adapted from prior research. All indicators were measured using a five-point Likert scale.

FWA was measured through three dimensions. First, flextime (flexible working hours), which includes freedom to determine start and end working times, the availability of core hours with flexible check-in/check-out, and supervisory support in adjusting work hours to personal or family needs (Berkery et al., 2024). Second, flexplace (flexible work location), which includes freedom to choose the work location, clear flexible work location policies, and the effectiveness of communication and coordination when working remotely (Shockley et al., 2022). Third, hybrid work (a combination of office and remote work), which includes clear scheduling of office and remote workdays, consistency in its implementation, and the effectiveness of team coordination in the hybrid work system (Bloom et al., 2024). FWA was therefore measured using a total of nine indicators.

Job quality was measured through three dimensions. First, work–life balance, which includes the ability to balance work and personal time, minimal work interference with family activities, and the availability of flexibility facilities (Dias et al., 2023). Second, decent working conditions (physical and psychological), which includes safety and comfort of the work environment, reasonable psychological workload, and the availability of work facilities and equipment (Kaviya et al., 2025). Third, career development and training opportunities, which includes the availability of training to improve competencies, clear career paths, and a performance-based promotion system (Holman & McClelland, 2011). Job quality was therefore measured using nine indicators.

Employee productivity was measured through three dimensions. First, work time efficiency, which includes timely task completion, effective planning, and time management. Second, quality and quantity of work output, which includes work accuracy, minimal major revisions, application of quality standards, and consistency in meeting work targets. Third, innovation and work initiative, which includes actively proposing improvement ideas, applying new methods, and taking a proactive approach to overcoming obstacles (Komariyah & Laelawati, 2023). Productivity was therefore measured using 10 indicators. In total, 28 indicators were used in this study.

Population and Sample

The population of this study consisted of all employees working in the field of Information Technology (IT) at companies in Indonesia. This population was selected based on the relatively flexible characteristics of IT work and its relevance to the implementation of FWA, both in terms of time and location flexibility.

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The sampling technique used a combination of convenience sampling and purposive sampling (Memon et al., 2025). Respondents were selected based on the following criteria: (1) working in the IT field, (2) having a minimum of one year of work experience, and (3) having experience working under a flexible work system, such as flextime, flexplace, hybrid work, or compressed workweek.

The respondents came from three companies in the technology and finance sectors in Indonesia: PT Stockbit Sekuritas Digital, PT Bank Danamon Indonesia Tbk, and PT Kredivo Finance Indonesia. These companies were selected based on their implementation of flexible work systems and digital work environments that support work flexibility.

The sample size was determined by referring to the guidelines of Hair et al. (2014), which recommend a minimum of five respondents for each research indicator. With a total of 28 indicators, the minimum required sample size was 140 respondents.

Data Collection Procedure

Data collection was carried out using a questionnaire distributed online through the Google Forms platform over approximately one month, from November 24, 2025 to December 29, 2025. An online questionnaire was chosen because the respondents were from the IT sector and are accustomed to using digital technology, and to facilitate questionnaire distribution to multiple companies. All data in this study were collected through self-reporting, in which respondents assessed their own perceptions of work flexibility, job quality, and productivity. The use of self-reported data may introduce common method bias (CMB) because the independent, mediating, and dependent variables were measured from the same source at the same time. To address this potential bias, common method bias was tested using the full collinearity VIF approach. The results showed that all VIF values in the outer model ranged from 1.113 to 1.793, and in the inner model ranged from 1.000 to 1.355. All values were below the critical threshold of 3.3, indicating that common method bias was not a significant concern in this study.

Research Ethics

This study was conducted with attention to research ethics. At the beginning of the questionnaire, respondents were provided with an informed consent statement explaining the purpose of the study, the voluntary nature of participation, and the use of data for academic purposes. Participation was voluntary, and the inclusion of personal identity was optional so that respondents could choose to answer anonymously. The collected data were used solely for the purposes of this study and were not shared with other parties.

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Data Analysis Technique

Data analysis was conducted using the Partial Least Squares–Structural Equation Modeling (PLS-SEM) approach with the SmartPLS 4 software. The PLS-SEM method was chosen because it is prediction-oriented, capable of handling data that are not fully normally distributed, and appropriate for research models with mediation relationships and a relatively large number of indicators.

Descriptive analysis was performed using SPSS version 20 to describe respondent characteristics and summarize questionnaire responses. Evaluation of the measurement model (outer model) included tests of convergent validity, discriminant validity, and construct reliability. Evaluation of the structural model (inner model) was conducted by assessing path coefficients, the coefficient of determination (R^2), effect size (f^2), and the predictive relevance of the model using the PLSpredict procedure.

Hypothesis testing was conducted using the bootstrapping procedure with 5,000 resamplings. A hypothesis was accepted if the p-value < 0.05. The mediation effect of job quality was tested by analyzing the significance of the indirect effect between Flexible Working Arrangement and employee productivity.

RESULTS AND DISCUSSION

The model in this study was tested using the Partial Least Squares Structural Equation Modeling (PLS-SEM) approach. Testing was carried out in stages, beginning with the evaluation of the measurement model (outer model) to ensure construct validity and reliability, followed by the evaluation of the structural model (inner model) to test the relationships between variables and the research hypotheses. This sequential approach ensured that hypothesis testing was based on instruments that had been proven valid and reliable.

Research Model Description

This research model consists of three latent variables: Flexible Working Arrangement (FWA), job quality, and employee productivity. In this model, Flexible Working Arrangement was modeled to have a direct effect on both job quality and employee productivity. In addition, job quality has a direct effect on employee productivity. Job quality is thus positioned as a mediating variable that explains the indirect effect of Flexible Working Arrangement on employee productivity.

Measurement Model Evaluation (Outer Model)

Outer model evaluation aimed to ensure that the indicators used are valid and reliable in measuring the latent constructs. Evaluation was conducted through tests of convergent validity, discriminant validity, and construct reliability.

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Convergent Validity Test

Convergent validity was assessed through the outer loading values of each indicator on its respective latent variable. The criteria used were:

- Outer loading ≥ 0.70 is considered very good
- Outer loading 0.40–0.70 is acceptable if AVE and construct reliability meet the required thresholds

Figure 2. Research Model After Outer Model Evaluation

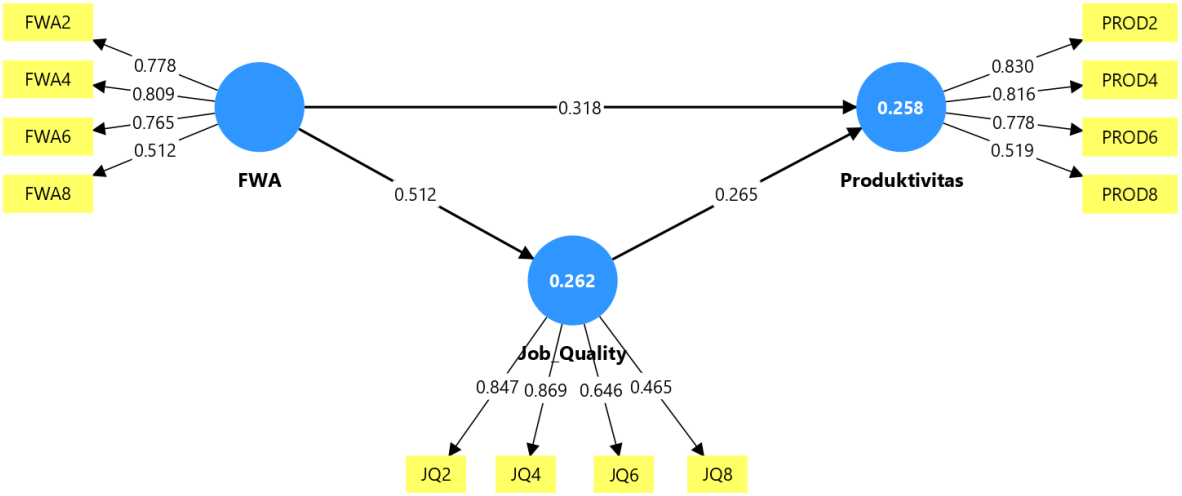

Table 1: Tabel Outer Loading Indikator

Indicator	Construct	Outer Loading
FWA2	FWA	0,778
FWA4	FWA	0,809
FWA6	FWA	0,765
FWA8	FWA	0,512
JQ2	Job Quality	0,847
JQ4	Job Quality	0,869
JQ6	Job Quality	0,646
JQ8	Job Quality	0,465
PROD2	Productivity	0,83
PROD4	Productivity	0,816
PROD6	Productivity	0,778
PROD8	Productivity	0,519

Based on Table 1, all indicators had outer loading values above 0.40, so all indicators were considered convergently valid and retained in the model. Although some indicators had outer loading values below 0.70, they were retained because the Average Variance Extracted (AVE) and Composite Reliability values for each construct met the required criteria. According

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to Hair et al. (2014), indicators with outer loadings between 0.40 and 0.70 can still be retained if removing them does not significantly improve the reliability and validity of the construct.

Construct Reliability Test

Reliability was assessed using:

- Cronbach's Alpha
- Composite Reliability (rho_a and rho_c)
- Average Variance Extracted (AVE)

The criteria used were:

- Cronbach's Alpha ≥ 0.60
- Composite Reliability ≥ 0.70
- AVE ≥ 0.50

Table 2: Construct Reliability

Variable	Cronbach's Alpha	rho_a	rho_c	AVE
FWA	0,695	0,734	0,812	0,527
Job Quality	0,688	0,778	0,808	0,527
Productivity	0,731	0,776	0,83	0,557

The results showed that Cronbach's Alpha and Composite Reliability values for all constructs were above the minimum thresholds of 0.60 and 0.70, indicating that the indicators within each construct had good internal consistency. In addition, AVE values greater than 0.50 indicated that each construct explained more than 50% of the variance in its indicators.

Discriminant Validity Test

Discriminant validity was tested using the Heterotrait-Monotrait Ratio (HTMT) with the criterion:

- HTMT value < 0.90

Table 3: HTMT Values

Variable Relationship	HTMT Values
Job Quality ↔ FWA	0,709
Productivity ↔ FWA	0,604
Productivity ↔ Job Quality	0,548

The HTMT results showed that all values were below the 0.90 threshold, indicating that each construct in this study has clear conceptual distinctions and that no multicollinearity issues exist between constructs.

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Structural Model Evaluation (Inner Model)

Inner model evaluation was conducted to test the relationships between latent variables and the research hypotheses. Evaluation included the assessment of the coefficient of determination (R^2), effect size (f^2), and the predictive relevance of the model using PLSpredict.

Coefficient of Determination (R^2)

R^2 values indicate how much of the variation in the endogenous variable is explained by the exogenous variables. The results showed that the R^2 value for job quality was 0.262, meaning that Flexible Working Arrangement explained 26.2% of the variation in job quality, while the remaining variation was influenced by other factors outside the model. Meanwhile, the R^2 value for employee productivity was 0.258, indicating that Flexible Working Arrangement and job quality together explained 25.8% of the variation in employee productivity. Based on the criteria of Hair et al. (2014), both R^2 values fall in the weak-to-moderate category (approaching 0.25). Nevertheless, these values are still acceptable given that productivity and job quality are influenced by many other factors not included in this model.

Effect Size (f^2)

f^2 values indicate how much each exogenous variable contributes to the endogenous variable. The results showed that FWA had a large effect on job quality with $f^2 = 0.355$ (≥ 0.35 = large effect). FWA had a small-to-medium effect on employee productivity with $f^2 = 0.101$ (between 0.02 and 0.15). Job quality had a small effect on employee productivity with $f^2 = 0.070$ (between 0.02 and 0.15). These findings indicate that FWA makes the greatest contribution to the formation of job quality, while its effect on productivity occurs both directly and through improvements in job quality. The coefficient of determination results are presented in Table 4, and the effect size results are presented in Table 5.

Table 4: Coefficient of Determination (R^2)

Endogenous Construct	R^2	R^2 Adjusted	Category
Job Quality	0,262	0,258	Weak-Moderate
Productivity	0,258	0,249	Weak-Moderate

Table 5: Effect Size (f^2)

Relationship	f^2	Category
FWA -> Job Quality	0,355	Large
FWA -> Productivity	0,101	Small-Medium
Job Quality -> Productivity	0,070	Small

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Predictive Relevance (PLSpredict)

Predictive relevance was evaluated using the PLSpredict procedure in SmartPLS 4, which is a modern cross-validation method that replaces the traditional blindfolding procedure. The results showed that the Q^2predict value for job quality was 0.239 and for employee productivity was 0.182. Both values were greater than zero, indicating that the model had adequate predictive relevance. In addition, a comparison of RMSE values showed that all endogenous indicators had PLS-SEM RMSE values smaller than the Linear Model (LM) RMSE values, indicating that the PLS-SEM model has better predictive power than the linear benchmark. The CVPAT (Cross-Validated Predictive Ability Test) results also showed that the PLS-SEM model had significantly better predictive ability than the benchmark model, both for the Indicator Average (average loss difference = −0.091; p = 0.001) and for the Linear Model (average loss difference = −0.016; p = 0.010). The PLSpredict summary at the construct level is presented in Table 6.

Table 6: PLSpredict Results at Construct Level

Construct	Q^2predict	RMSE	MAE
Job Quality	0,239	0,881	0,655
Productivity	0,182	0,916	0,688

Hypothesis Testing

Hypothesis testing was conducted using the bootstrapping method with 5,000 resamplings. The criteria for hypothesis testing were:

- T-statistics > 1.96
- P-values < 0.05

Direct Effect & Indirect Effect Testing

Table 7: Path Coefficients

Relationship	Coefficient	T-statistics	P-values
FWA → Job Quality	0,512	7,248	< 0,001
FWA → Productivity	0,318	3,135	0,002
Job Quality → Productivity	0,265	2,683	0,007
FWA → Job Quality → Productivity	0,135	2,443	0,015

Based on the results in Table 7, the findings can be explained as follows:

1. **Effect of Flexible Working Arrangement on Employee Productivity (H1)**

   Flexible Working Arrangement had a positive and significant effect on employee productivity with a path coefficient of β = 0.318, t-statistics = 3.135, and p = 0.002. The f^2 value for this relationship was 0.101, which is classified as a small-to-

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medium effect (between 0.02 and 0.15). Although the direct effect of FWA on productivity was significant, its effect size was smaller than the effect of FWA on job quality (f^2 = 0.355). This indicates that work flexibility contributes directly to productivity, but its effect becomes larger when accompanied by improvements in job quality. Therefore, hypothesis H2 is supported.

2. **Effect of Flexible Working Arrangement on Job Quality (H2)**

Flexible Working Arrangement had a positive and significant effect on job quality with a path coefficient of β = 0.512, t-statistics = 7.248, and $p < 0.001$. The f^2 value for this relationship was 0.355, which is classified as a large effect (≥ 0.35) based on the criteria of Hair et al. (2014). These results indicate that FWA has a strong effect on job quality and represents the relationship with the largest effect size in this model. Therefore, hypothesis H1 is supported.

3. **Effect of Job Quality on Employee Productivity (H3)**

Job quality had a positive and significant effect on employee productivity with a path coefficient of β = 0.265, t-statistics = 2.683, and p = 0.007. The f^2 value for this relationship was 0.070, which is classified as a small effect (between 0.02 and 0.15). Although the effect size is small, this relationship remains statistically significant and substantively meaningful, as it shows that job quality makes an independent contribution to productivity after controlling for the direct effect of FWA. Therefore, hypothesis H3 is supported.

4. **Job Quality Mediates the Effect of FWA on Employee Productivity (H4)**

The indirect effect test showed that FWA had a positive and significant effect on employee productivity through job quality, with a path coefficient of β = 0.135, t-statistics = 2.443, and p = 0.015. To determine the type and strength of mediation, further analysis was conducted as follows.

First, determination of mediation type. The direct effect of FWA on productivity (β = 0.318; p = 0.002) and the indirect effect through job quality (β = 0.135; p = 0.015) were both significant and in the same direction (positive). Based on the classification by Zhao et al. (2010), this constitutes complementary partial mediation, meaning that job quality complements the direct effect of FWA on productivity through an indirect path that is consistent in direction.

Second, calculation of mediation strength. The total effect of FWA on productivity was 0.453 (direct effect 0.318 + indirect effect 0.135). The Variance Accounted For (VAF) was calculated as the ratio of the indirect effect to the total effect: VAF = 0.135 / 0.453 = 29.8%. Based on the criteria of Hair et al. (2014), a VAF value

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between 20% and 80% confirms that the mediation is partial. This indicates that approximately 29.8% of the total effect of FWA on productivity is channeled through improvements in job quality, while the remaining 70.2% is a direct effect.

Third, implications of mediation. This complementary partial mediation has two important implications. On one hand, FWA has a direct benefit on productivity through increased autonomy and work efficiency. On the other hand, FWA also improves productivity indirectly through improvements in the job quality perceived by employees. In other words, organizations can maximize the impact of FWA on productivity by ensuring that the implementation of work flexibility is accompanied by comprehensive improvements in job quality. A summary comparing direct and indirect effects is presented in Table 8, and the results of the mediation strength and type analysis are presented in Table 9. Therefore, hypothesis H4 is supported.

Table 8: Comparison of Direct and Indirect Effects

Effect Type	**Path**	**B**	**t-statistics**	**p-value**	**Significant?**
Direct Effect	FWA -> Productivity	0,318	3,135	0,002	Yes
Indirect Effect	FWA -> Job Quality -> Productivity	0,135	2,443	0,015	Yes
Total Effect	FWA -> Productivity	0,453	-	-	-

Table 9: Mediation Strength and Type

Indicator	**Value**	**Description**
VAF (Variance Accounted For)	29,8%	0,135 / 0,453 = 29,8%
VAF Classification	Partial Mediation	VAF between 20%-80% (Hair et al., 2014)
Mediation Type	Complementary Partial Mediation	Both direct and indirect effects are significant and positive (Zhao et al., 2010)

Overall, all research hypotheses (H1–H4) were supported empirically. The results showed that IT employee productivity was affected by FWA through two paths: a direct path with a small-to-medium effect ($f^2 = 0.101$), and an indirect path through job quality with a mediation contribution of 29.8% (VAF). Among all relationships in the model, the effect of FWA on job quality had the largest effect size ($f^2 = 0.355$), confirming that work flexibility is most effective in improving the job quality of IT employees.

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Summary of Hypothesis Testing

Table 10: Summary of Hypothesis Testing

Hypothesis	Statement	Result
H1	FWA has an effect on Productivity	Supported
H2	FWA has an effect on Job Quality	Supported
H3	Job Quality has an effect on Productivity	Supported
H4	Job Quality mediates the effect of FWA on Productivity	Supported

DISCUSSION

This study aimed to analyze the effect of Flexible Working Arrangement (FWA) on IT employee productivity with job quality as a mediating variable. Based on the results of the structural model testing using PLS-SEM, all proposed hypotheses were supported empirically. The following discussion analyzes these findings based on the JD-R Theory framework, comparisons with prior research, and the specific context of the IT sector in Indonesia.

Effect of Flexible Working Arrangement on Job Quality

The results showed that FWA had a positive and significant effect on job quality ($\beta = 0.512$; $p < 0.001$), with a large effect size ($f^2 = 0.355$). These findings indicate that among all relationships in the model, FWA has the strongest effect on job quality. This can be explained through the JD-R Theory framework, in which work flexibility functions as a job resource that reduces the negative impact of job demands while also enhancing employees' intrinsic motivation (Adiarti & Dimyati, 2021). When IT employees have flexibility in determining their working time and location, they gain greater autonomy to adjust their work pace to personal circumstances, reduce work–personal life conflicts, and reduce commute-related fatigue. These conditions directly improve employees' perception of their job quality (Aura & Desiana, 2023; Bloom et al., 2024).

This finding is consistent with Wang & Dong (2024), who found that various forms of FWA including reduced working hours, schedule flexibility, and location flexibility significantly improved perceptions of job quality by reducing work–family conflict and improving subjective well-being. What is particularly notable in this study, however, is the large effect size ($f^2 = 0.355$), which is greater than the direct effect of FWA on productivity ($f^2 = 0.101$). This difference indicates that in the IT sector context, work flexibility is more effective in shaping perceptions of job quality than in directly improving work output. This can be understood because the IT sector has job characteristics that require high concentration, creativity, and virtual collaboration, making flexibility a highly meaningful factor in shaping the overall work experience.

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Effect of Flexible Working Arrangement on Employee Productivity

FWA had a positive and significant effect on employee productivity (β = 0.318; p = 0.002), with a small-to-medium effect size (f^2 = 0.101). These findings indicate that work flexibility contributes directly to productivity, although its effect is not as large as its effect on job quality. In practical terms, flexibility allows IT employees to work at the time and under conditions that best match their biological rhythms and individual preferences, thereby improving focus and work efficiency. Unlike conventional work systems tied to fixed times and locations, FWA gives employees room to optimize their work energy.

Harrop et al. (2025) found that FWA improves work engagement and autonomous motivation, which encourages employees to be more enthusiastic and focused in completing their work. Furthermore, FWA also contributes to improvements in task performance and Organizational Citizenship Behaviours (OCB), while reducing Counterproductive Work Behaviours (CWB). This finding is consistent with Bloom et al. (2024), who showed that the hybrid work model does not reduce productivity and can in fact improve it in the long term. However, it should be noted that the effect size of FWA on productivity (f^2 = 0.101) is small to medium, which indicates that work flexibility alone is not sufficient to produce a large improvement in productivity. This finding supports the argument that other mechanisms in this case, job quality play a role in bridging the effect of FWA on productivity more effectively.

Effect of Job Quality on Employee Productivity

Job quality had a positive and significant effect on employee productivity (β = 0.265; p = 0.007), with a small effect size (f^2 = 0.070). Although the effect size is small, this finding remains meaningful because it shows that employees' perceptions of job quality independently contribute to productivity after controlling for the direct effect of FWA. High job quality encompassing work-life balance, decent working conditions, and career development opportunities creates a psychological environment that supports optimal performance. When employees feel that their workload is clear, the work environment is conducive, and there are opportunities for growth, their motivation and work engagement increase, which is ultimately reflected in higher productivity.

From the JD-R Theory perspective, high job quality reflects the availability of adequate job resources, which not only reduces the impact of job demands but also triggers motivational processes that drive performance (Adiarti & Dimyati, 2021). This finding supports Kaviya et al. (2025), who showed that a supportive work environment has a positive impact on productivity through improved work motivation. This study also aligns with Nisa Trisna Natania (2025), who found that work motivation and self-development contribute to higher productivity. The relatively small effect size (f^2 = 0.070) is likely because IT employee

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productivity is influenced by many other factors outside the model, such as technical competence, project management quality, and the availability of technology infrastructure. This is also reflected in the R^2 value of 0.258 for productivity, indicating that 74.2% of productivity variation is explained by other factors.

Job Quality Mediates the Effect of FWA on Productivity

The most important finding of this study is the confirmed role of job quality as a mediator in the relationship between FWA and employee productivity ($\beta = 0.135$; $p = 0.015$). To understand the strength of this mediation more thoroughly, the Variance Accounted For (VAF) was calculated. The direct effect of FWA on productivity was $\beta = 0.318$, while the indirect effect through job quality was $\beta = 0.135$, giving a total effect of 0.453. Therefore, VAF = 0.135 / 0.453 = 29.8%. This figure indicates that approximately 29.8% of FWA's total effect on productivity is channeled through improvements in job quality, while the remaining 70.2% is a direct effect. Based on the criteria of Hair et al. (2014), a VAF value between 20% and 80% confirms partial mediation.

This partial mediation has important theoretical implications. First, FWA has two paths of influence on productivity: a direct path, in which flexibility directly facilitates work efficiency and focus, and an indirect path, in which flexibility first improves job quality, which then drives productivity. Second, the fact that the mediation is partial rather than full indicates that the direct effect of FWA on productivity remains substantial and does not depend entirely on improvements in job quality. This suggests that FWA has intrinsic benefits for productivity for example through reduced commuting time and increased autonomy that operate outside of the job quality mechanism.

These findings extend the understanding of JD-R Theory by showing that job resources in the form of work flexibility affect performance through two mechanisms: a direct mechanism through improved efficiency and work autonomy, and an indirect mechanism through improvements in overall job quality. Although prior research in the Asian context, such as in Singapore, has shown that FWA improves well-being and work–life balance (Wang & Dong, 2024), and other research has shown disparities in FWA access based on socioeconomic status (van der Lippe et al., 2024), studies that specifically examine the mediating mechanism of job quality in the IT sector in developing countries remain very limited. This study fills that gap by showing that when FWA is effectively accessible and accompanied by improvements in job quality, its impact on productivity is more optimal. These findings highlight the importance of implementing FWA in a way that is not only formally available, but also designed to genuinely improve the quality of the work experience.

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Critical Reflections and Limitations

Although all hypotheses were supported empirically, these findings should be interpreted with several limitations in mind. First, the moderate R^2 values (0.262 and 0.258) indicate that other factors outside the model such as leadership style, organizational culture, and technical competence also affect job quality and productivity. Second, the three sample companies are organizations with well-established digital cultures, so the findings may not be generalizable to IT companies with different infrastructure conditions. Third, the use of self-reported data may introduce social desirability bias, although the common method bias test did not show a serious concern. Fourth, the cross-sectional design does not allow for definitive causal relationships to be established, as the possibility of reverse causality cannot be ruled out. Fifth, the use of convenience and purposive sampling limits the representativeness of the sample for the overall population of IT employees in Indonesia.

Based on these limitations, future studies are recommended to use a longitudinal design, expand the sample to a more diverse range of IT companies, and supplement self-reported data with objective measures of productivity.

CONCLUSION

This study concluded that Flexible Working Arrangement (FWA) has a positive effect on IT employee productivity, both directly and through Job Quality as a mediating variable. The implementation of a flexible work system has been shown to improve employees' perceived job quality, which in turn contributes to improvements in work productivity.

The results also showed that Job Quality serves as a mediating variable, confirming that the effect of FWA on productivity will be more optimal when work flexibility is accompanied by good management of job quality. Work flexibility therefore functions not only as an operational policy, but also as an organizational strategy for improving employee performance in a sustainable way.

Overall, this study highlights the importance of implementing Flexible Working Arrangement in an integrated manner with improvements in job quality, particularly in the information technology sector.

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