

Innovative Work Behavior in Start-Ups: Mediation and Moderation Analysis of Job Insecurity, Transformational Leadership, and Subjective Well-Being

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Abstract

Amid unstable funding and high rates of business failure, Indonesia's start-up ecosystem increasingly depends on employees' innovative work behavior. Yet, the psychological mechanisms that drive such behavior remain underexplored in start-up-focused research. This study aims to examine the direct and indirect relationships between subjective well-being, job insecurity, and transformational leadership on innovative work behavior among start-up employees in Indonesia. A quantitative cross-sectional design was employed, involving 421 start-up employees. Data analysis was performed using Partial Least Squares Structural Equation Modeling (PLS-SEM) with a disjoint two-stage approach to address the hierarchical construct structure. The results indicate that job insecurity does not have a direct effect on innovative work behavior, whereas transformational leadership shows a significant direct effect. Additionally, subjective well-being serves as a mediator in the relationship between both job insecurity and transformational leadership with innovative work behavior. However, transformational leadership does not moderate the relationship between job insecurity and innovative work behavior. The findings suggest that organizations should develop policies or interventions that strengthen subjective well-being and transformational leadership as strategic efforts to enhance innovative work behavior among employees in start-up environments.

Keywords: innovative work behavior, quantitative job insecurity, qualitative job insecurity, subjective well being

Abstrak

Dalam kondisi pendanaan yang tidak stabil dan tingkat kegagalan bisnis yang tinggi, ekosistem start-up di Indonesia sangat bergantung pada innovative work behavior. Namun, hingga kini, mekanisme psikologis yang melandasi perilaku tersebut masih kurang mendapat sorotan dalam penelitian yang berfokus pada dunia start-up. Penelitian ini bertujuan untuk menguji hubungan langsung maupun tidak langsung antara subjective well-being, job insecurity, dan transformational leadership terhadap innovative work behavior pada karyawan start-up di Indonesia. Penelitian ini menggunakan desain kuantitatif dengan pendekatan cross-sectional yang melibatkan 421 karyawan start-up di Indonesia. Analisis data dilakukan dengan pendekatan Partial Least Squares Structural Equation Modeling (PLS-SEM) menggunakan disjoint two-stage approach untuk menangani konstruk hierarkis. Hasil menunjukkan bahwa job insecurity tidak memiliki pengaruh langsung terhadap innovative work behavior, sedangkan transformational leadership memiliki pengaruh langsung yang signifikan. Selain itu, subjective well-being terbukti berperan sebagai mediator dalam pengaruh job insecurity dan transformational leadership terhadap innovative work behavior. Namun, transformational leadership tidak memoderasi hubungan antara job insecurity dan innovative work behavior. Implikasi penelitian ini mendorong organisasi untuk mengembangkan kebijakan atau intervensi yang memperkuat subjective well-being dan transformational leadership sebagai strategi untuk meningkatkan innovative work behavior karyawan di lingkungan start-up.

Kata kunci: innovative work behavior, quantitative job insecurity, qualitative job insecurity, subjective well being

Introduction

Indonesia's start-up ecosystem grew from 2,346 firms in 2022 to 2,482 in 2023, ranking sixth globally and first in Southeast Asia ([Startup Ranking, 2025](#)). Despite this progress, sustaining start-ups remains difficult due to high failure rates linked to poor strategies, limited funding, and product market mismatches ([Cantamessa et al., 2018](#)). Operating under financial and market uncertainty makes innovation critical for survival and growth ([Islam et al., 2024](#); [Moroni et al., 2015](#)), as it drives transformation, enhances performance, and influences investor decisions ([Aminova & Marchi, 2021](#)). Consequently, fostering employees' innovative work behavior (IWB) becomes essential ([Sternberg & Shoham, 2022](#)).

IWB refers to the creation, promotion, and realization of new ideas that benefit individual and organizational performance ([Janssen et al., 2004](#)). It enhances innovation capability and sustainability, especially in dynamic, technology-driven environments ([Aliane & Zakariya, 2023](#)). Studies confirm its relevance across sectors, for example, proactive personality and school climate influence students' IWB ([Baidun et al., 2024](#)), while supportive work conditions promote well-being and innovation in organizations ([Ogunola, 2024](#)). These findings highlight that innovation and well-being are cross-sectoral drivers of organizational sustainability.

However, start-ups face frequent layoffs ([Tandyana & Ayuningtyas, 2023](#)) and declining investments, US\$0.14 billion in early 2025, the lowest in eight years ([Tech in Asia, 2025](#)), which intensify job insecurity (JI). Defined as employees' perception of future job threats ([Vander Elst et al., 2014](#)), JI is a workplace stressor ([De Witte et al., 2015](#)) and hindrance demand ([Montani et al., 2020](#)) that depletes psychological resources, reduces motivation, and undermines extra-role behaviors such as innovation. Research consistently shows its negative impact on IWB ([Aliane & Zakariya, 2023](#); [De Spiegelacre et al., 2014a](#); [Niesen et al., 2018](#)), as uncertainty and strain limit creativity and willingness to engage in non-routine tasks. Thus, in highly uncertain start-up environments, job insecurity is likely to hinder innovative work behavior, making it important to examine how employees' psychological states, particularly well-being, mediate this relationship and determine an organization's innovation capacity.

Hypothesis 1: job insecurity negatively and significantly affects innovative work behavior.

Job insecurity can undermine employees' willingness and ability to innovate, as uncertainty reduces psychological resources needed for creativity and extra-role behaviors ([Montani et al., 2020](#)). In contrast, transformational leadership has been widely recognized as a critical driver of innovation, especially in start-ups facing rapid change, financial instability, and intense competition ([Arshad et al., 2016](#); [Lange et al., 2023](#)). Such leaders articulate a compelling vision, develop and empower employees, and create supportive environments that foster resilience and commitment ([Afsar & Umrani, 2020a](#); [Carless et al., 2000a](#)). Empirical studies consistently show that transformational leadership enhances innovative work behavior by motivating employees to generate, promote, and implement new ideas ([Vu et al., 2025](#)).

In addition, organizational context such as learning culture and resilience plays a complementary role. [Kartika Sari et al., \(2025\)](#) found that a strong learning culture enhances work engagement through employee resilience, although negative leadership styles like abusive supervision can weaken this process. This suggests that while transformational leadership directly encourages innovation, its impact is further strengthened when embedded in an organizational culture that values learning, adaptability, and psychological safety conditions that are particularly crucial in start-ups operating under persistent uncertainty.

Hypothesis 2: transformational leadership positively and significantly affects innovative work behavior.

Although previous studies have linked job insecurity and transformational leadership to innovative work behavior, the underlying mechanisms remain insufficiently clarified. Within the framework of the Job Demands–Resources (JD-R) Theory, job insecurity is viewed as a hindrance demand that depletes employees' psychological resources, while transformational leadership functions as a job resource that

enhances motivation and engagement. These contrasting roles suggest that subjective well-being may serve as the psychological pathway through which job insecurity and transformational leadership exert their effects on innovative outcomes.

Subjective well-being (SWB) refers to individuals' overall evaluation of life, encompassing both affective balance and life satisfaction. Employees with higher well-being experience more positive emotions, greater satisfaction, and resilience in facing challenges, which promote creativity, collaboration, and persistence in implementing new ideas. Studies such as ([Suprananto et al., 2024](#)) confirm that well-being is multidimensional which covering personal, emotional, social, and spiritual aspects and making it essential for sustaining innovation in organizational contexts.

Job insecurity, however, undermines SWB by elevating negative affect, reducing positive emotions, and lowering satisfaction with work and life. This is consistent with Transactional Stress Theory, which views job uncertainty as a stress-inducing threat, and the Conservation of Resources Theory, which argues that perceived loss of resources diminishes well-being. Empirical evidence ([Bobbio et al., 2017](#); [Nath et al., 2024a](#)) supports the negative impact of job insecurity on well-being, showing that insecurity not only threatens employment but also drains the psychological vitality needed to engage in innovative activities.

In contrast, transformational leadership enhances SWB by providing support, empowerment, and meaningful work. Leaders who articulate vision, empower employees, and recognize contributions fulfill fundamental psychological needs for autonomy, competence, and relatedness, thereby fostering positive affect and satisfaction. Such supportive environments strengthen employees' sense of value and motivation, reinforcing their well-being and sustaining their willingness to engage in innovation. This confirms prior research showing that transformational leadership promotes both well-being and innovative outcomes ([Li & Liu, 2022](#); [Martela, 2023](#)).

Taken together, these arguments suggest that SWB plays a mediating role between job insecurity, transformational leadership, and innovative work behavior. High well-being broadens cognitive repertoires, fosters creativity, and enhances collaboration, supporting all stages of innovation from idea generation to implementation. Positive affect facilitates problem-solving and creative thinking, while diminished well-being leads to fatigue and disengagement. Therefore, SWB is not only directly linked to innovation but also transmits the negative effects of job insecurity and the positive effects of transformational leadership, making it a central psychological mechanism in explaining employees' innovative work behavior.

Hypothesis 3: subjective well-being positively and significantly affects innovative work behavior.

Hypothesis 4: job insecurity negatively and significantly affects subjective well-being.

Hypothesis 5: subjective well-being mediates the negative effect of job insecurity on innovative work behavior.

Hypothesis 6: transformational leadership positively and significantly affects subjective well-being.

Hypothesis 7: subjective well-being mediates the positive effect of transformational leadership on innovative work behavior.

The link between job insecurity and innovative work behavior can also be influenced by contextual factors such as leadership style. Transformational leadership marked by an inspiring vision, lead by example, and commitment to organizational goals ([Carless et al., 2000b](#); [Chung & Li, 2021](#)) offers emotional support, empowerment, and clarity ([Afsar & Umrani, 2020b](#)) that help employees stay motivated and innovative despite uncertainty. Within the Job Demands–Resources Theory, it serves as a job resource that buffers demands like job insecurity, lowering cognitive, emotional, and physical workload ([Fernet et al., 2015](#)). Prior studies show it can moderate the relationship between traits and innovative work behavior ([Vo et al., 2024a](#)) and in mediation models involving felt accountability, task-relevant information elaboration, and innovative work behavior ([Kuo et al., 2022](#)). By fostering a

supportive, empowering, and socially connected environment, transformational leadership can mitigate the negative effects of job insecurity and sustain employee engagement in innovative work behavior.

Hypothesis 8: transformational leadership moderates the negative effect of job insecurity on innovative work behavior.

This study aims to fill a critical gap by examining how job insecurity and transformational leadership affects innovative work behavior through the mediating role of subjective well-being and the moderating effect of transformational leadership on the job insecurity–innovative work behavior link among start-up employees. Although prior research has examined these variables independently, no integrative model has empirically tested this mediation–moderation mechanism with subjective well-being as the core psychological pathway nor have examined them in the high-uncertainty start-up context. This study aims to contribute theoretically to the field of industrial and organizational psychology by extending Job Demands–Resources Theory to position job insecurity as job demand, transformational leadership as job resource, and subjective well-being as the linking mechanism to innovative work behavior. Practically, this study offers a framework for start-up organizations to better understand and sustain innovation under conditions of uncertainty.

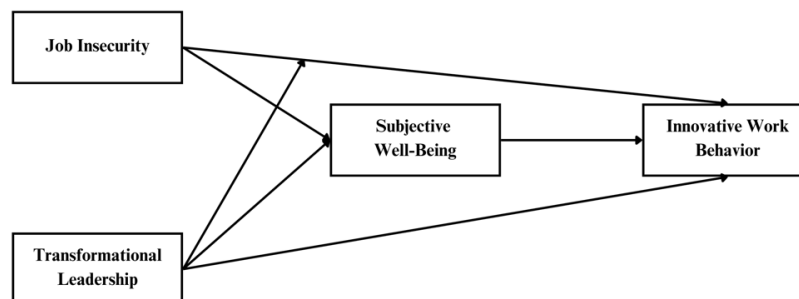


Figure 1. Conceptual Model

Methods

Sample and Data Collection

This study employed a quantitative, non-experimental, cross-sectional design targeting employees of start-up companies in Indonesia. Inclusion criteria required participants to be currently employed in a start-up for at least six months, consistent with prior research indicating this period allows sufficient organizational socialization (Schein, 2004; Yusuf & Etikariena, 2023). Data were collected online via SurveyMonkey, with participants recruited through coordination with employee representatives and LinkedIn outreach based on job status and company affiliation. The minimum sample size was calculated using the inverse square root method (Kock et al., 2021), recommended for PLS-SEM (Hair & Alamer, 2022). With a minimum path coefficient of .2, 80% power, and a 5% significance level, the required sample size was 155. A total of 421 valid responses were obtained, exceeding this threshold. Sampling followed a non-probability purposive approach, which effectively targeted individuals with relevant characteristics aligned with the study's objectives (Campbell et al., 2020).

Table 1. Demographic Data

Demographics	Cases	Percentage
Age		
< 28 tahun years old (Generation Z)	252	60%
29-44 years old (Millenial)	166	39%
45-60 years old (Gen X)	3	1%
Gender		
Male	204	48%
Female	217	52%
Education level		
High School	25	6%
Bachelor's degree	357	85%
Master's degree	39	9%
Job position		
Staff	231	55%
Senior Staff/Supervisor	110	26%
Equivalent to Asisten Manager	29	7%
Equivalent to Manager	35	8%
Equivalent to Senior Manager	16	4%
Company size		
11-100	119	28%
101-500	173	41%
501-1000	71	17%
> 1000	58	14%
Employment duration		
6 months- < 1 year	115	27%
1-2 years	125	30%
2-5 years	162	38%
5-10 years	19	5%
Employment status		
Permanent	220	52%
Contract	201	48%

Participants' ages ranged from 19 to 50 years ($M = 29.48$, $SD = 5.69$). The majority were Generation Z (<28 years old; 60%), followed by Millennials (29–44 years; 39%) and a small proportion of Generation X (45–60 years; 1%). Gender distribution was nearly balanced (48% male, 52% female). Most respondents held a bachelor's degree (85%), while 9% had a master's and 6% a high school diploma. In

terms of job position, 55% were staff, 26% senior staff or supervisors, 7% assistant managers, 8% managers, and 4% senior managers. Company size varied: 41% worked in organizations with 101–500 employees, 28% in firms with 11–100 employees, 17% in 501–1000, and 14% in firms with over 1000 employees. Employment duration showed that 27% had worked 6–12 months, 30% for 1–2 years, 38% for 2–5 years, and 5% for 5–10 years.

Employment status was nearly evenly split between permanent (52%) and contract (48%) workers. Literature suggests that contract workers typically report higher job insecurity due to uncertain renewal and career prospects ([De Cuyper & De Witte, 2007](#); [Keim et al., 2014](#)). However, in dynamic start-up environments, insecurity is not limited to contractual arrangements, as even permanent employees may feel threatened by organizational volatility ([De Cuyper et al., 2010](#)). This balanced distribution underscores that both groups are vulnerable to insecurity, making employment status an important contextual factor and potential control variable in interpreting job insecurity.

Measures

Three of the four instruments, Innovative Work Behavior Scale, Job Insecurity Scale, and Global Transformational Leadership Scale, were originally developed in English and adapted into Bahasa Indonesia by the researcher following [the International Test Commission \(2017\)](#) Guidelines for Translating and Adapting Tests. The adaptation process involved translation by bilingual experts, expert review by industrial-organizational psychology and human resource specialists, and a readability test with start-up employees to ensure clarity and contextual relevance. For Subjective Well-Being, previously validated Indonesian versions were used with permission from the adaptors.

Innovative Work Behavior (IWB) was measured using [Janssen's \(2000\)](#) nine-item scale covering idea generation, idea promotion, and idea realization. Items were rated on a five-point Likert scale (1 = never to 5 = always). A sample item is: “How often do you create new ideas for difficult issues?”

Job Insecurity (JI) was assessed with the seven-item scale by ([König & Staufenbiel, 2011](#)), which captures both cognitive and affective aspects of job insecurity. Responses were given on a seven-point Likert scale (1 = strongly disagree to 7 = strongly agree). A sample item is: “The thought of losing my job scares me.”

Transformational Leadership (TL) was measured with the Global Transformational Leadership Scale by ([Carless et al., 2000](#)), consisting of seven items that assess behaviors such as articulating vision, staff development, supportive leadership, empowerment, innovative thinking, leading by example, and charisma. Items were rated on a five-point Likert scale (1 = very rarely or never to 5 = very often or always). A sample item is: “My leader communicates a clear and positive vision of the future.”

Subjective Well-Being (SWB) was measured using two validated Indonesian instruments: the Satisfaction with Life Scale (SWLS) ([Diener et al., 1985](#); [Muttakin, 2022](#)) and the Positive and Negative Affect Schedule (PANAS; ([Watson et al., 1988](#)); adapted by [Akhtar, \(2019\)](#). The SWLS includes five items rated on a seven-point Likert scale (1 = strongly disagree to 7 = strongly agree), with a sample item: “In most ways my life is close to my ideal.” The PANAS consists of 20 items assessing positive and negative affect on a five-point Likert scale (1 = almost never to 5 = almost always), with sample items such as “Interested” (positive affect) and “Distressed” (negative affect).

Data Analysis

Data analysis was conducted using the Partial Least Squares Structural Equation Modeling (PLS-SEM) approach with SmartPLS 4 ([Ringle et al., 2024](#)). A disjoint two-stage approach was applied to accommodate the reflective hierarchical component model. In this approach, lower-order component (LOC) scores were first estimated and then used as indicators for the higher-order constructs (HOCs) in the second stage ([Hair et al., 2022](#); [Sarstedt et al., 2019](#)). Hypothesis testing was performed using a

bootstrapping technique with 5.000 resamples to generate empirical estimates of path coefficients, t-statistics, and p-values.

Results and Discussion

Results

Evaluation of Measurement Model

Lower-Order Constructs (LOCs)

The measurement model evaluation began with the assessment of indicator reliability. Following the guidelines by [Hair et al. \(2017, 2022\)](#), item loadings of $\geq .708$ are considered acceptable. Items with loadings between .40 and .70 may be retained or removed based on their effect on construct reliability and convergent validity, while items with loadings below .40 should be removed. Based on these criteria, PA6 was removed due to a loading below .40. Additionally, items NA2, NA3, NA5, NA6, NA7 though within the .40–.70 range were removed because their inclusion reduced the construct's composite reliability and average variance extracted (AVE). In contrast, items IWB1, IWB8, LS5, PA1, PA3, PA7, PA9, PA10 also had loadings between .40 and .70 but were retained, as their removal led to lower internal consistency and AVE. All other items, including IWB2 to IWB9, JI1, JI7, TL1 to TL7, demonstrated satisfactory loadings above .708 and were retained for further analysis. PLS-SEM graph after removal can be seen on the **Figure 2** below.

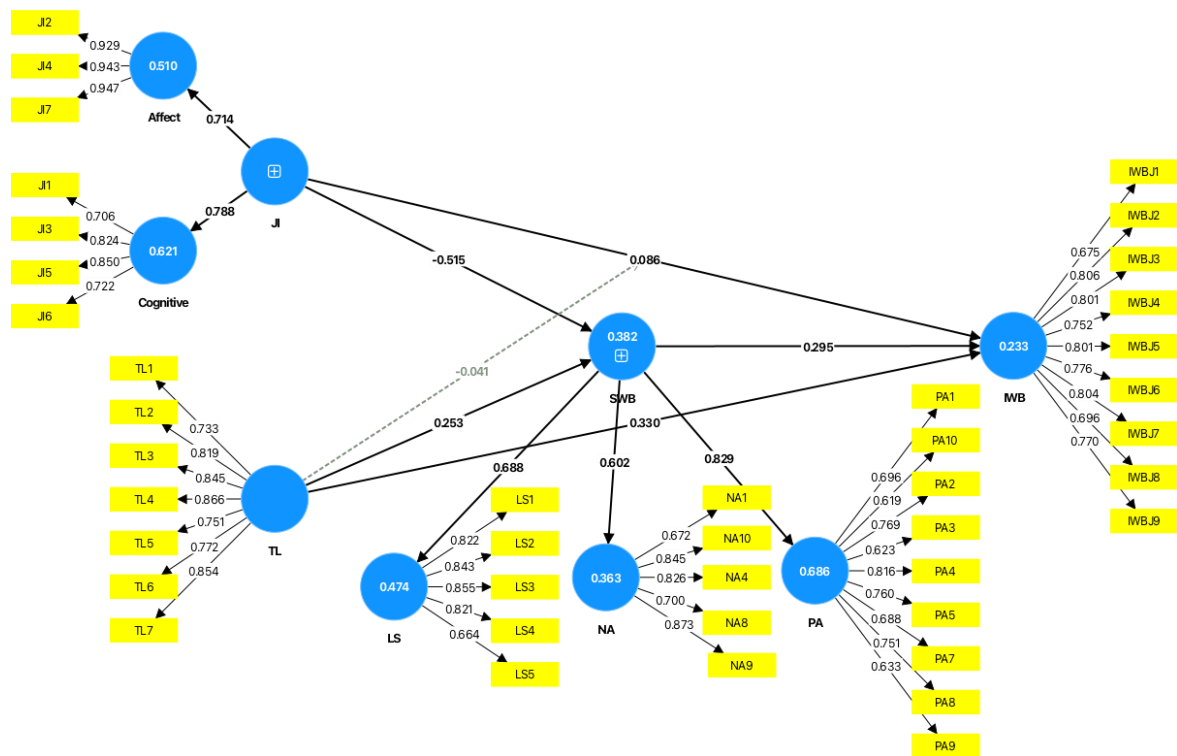


Figure 2. PLS-SEM First Stage Results

In the first stage, internal consistency reliability was assessed using Cronbach's alpha, composite reliability (ρ_C), and reliability ρ_A with minimum value of .70 ([Hair et al., 2022](#)). Convergent validity was evaluated using the average variance extracted ($AVE \geq .50$). All constructs showed Cronbach's alpha, reliability ρ_A , and composite reliability (ρ_C) values above the minimum recommended threshold of .70 ([Hair et al., 2022](#)), indicating satisfactory internal consistency. All AVE values exceeded .50, confirming adequate convergent validity for all constructs.

Tabel 2. LOCs Reliability and Convergent Validity

	Cronbach's alpha	ρ_A	ρ_C	AVE
Innovative work behavior	.911	.915	.927	.587
JI – Affect	.934	.936	.958	.884
JI – Cognitive	.781	.794	.859	.605
Transformational leadership	.911	.919	.929	.652
SWB – Life Satisfaction	.861	.873	.901	.646
SWB – Positive affect	.875	.881	.900	.503
SWB – Negative affect	.843	.855	.890	.620

Discriminant validity was assessed using the Fornell-Larcker criterion ([Hair et al., 2019, 2022](#)), which compares the square root of the AVE (diagonal values) with the correlations between constructs (values below the diagonal). According to the [Fornell & Larcker \(1981\)](#) criterion, discriminant validity is established when the diagonal value (square root of AVE) is greater than any correlation value between that construct and the others in the same row or column. Based on **table 3**, all diagonal values—*affect* (.940), *cognitive* (.778), *innovative work behavior* (.766), *life satisfaction* (.804), *negative affect* (.787), *positive affect* (.709), and *transformational leadership* (.807)—were higher than their corresponding inter-construct correlations. Therefore, all constructs in the model demonstrated adequate discriminant validity, as each construct's square root of AVE exceeded its correlations with other constructs.

Tabel 3. LOCs Discriminant Validity (Fornell-Larcker Criterion)

	1	2	3	4	5	6	7
1 Affect	.940						
2 Cognitive	.132	.778					
3 Innovative work behavior	.014	-.230	.766				
4 Life satisfaction	-.208	-.365	.249	.804			
5 Negative affect	-.467	-.296	.084	.280	.787		
6 Positive affect	-.079	-.472	.381	.309	.233	.709	
7 Transformational leadership	.064	-.345	.415	.175	.120	.395	.807

Higher-Order Constructs (HOCs)

In the second stage, outer loadings for the higher-order constructs were evaluated based on their underlying dimensions. As shown in **Figure 2**, all dimensions showed outer loadings $\geq .70$, and were thus accepted, except for the affective dimension of job insecurity (.537) and the negative affect dimension of subjective well-being (.631), which had loadings within the .40–.70 range. Although below the ideal threshold, these dimensions were retained as they did not compromise the overall internal reliability or convergent validity of the constructs and were deemed important for representing their respective higher-order constructs.

Innovative work behavior and transformational leadership each showed an outer loading of 1.000, as they are single constructs without sub-dimensions. For job insecurity, the cognitive dimension demonstrated a very strong contribution (.907). Likewise, in subjective well-being, both dimensions—life satisfaction (.714) and positive affect (.794)—showed satisfactory outer loadings.

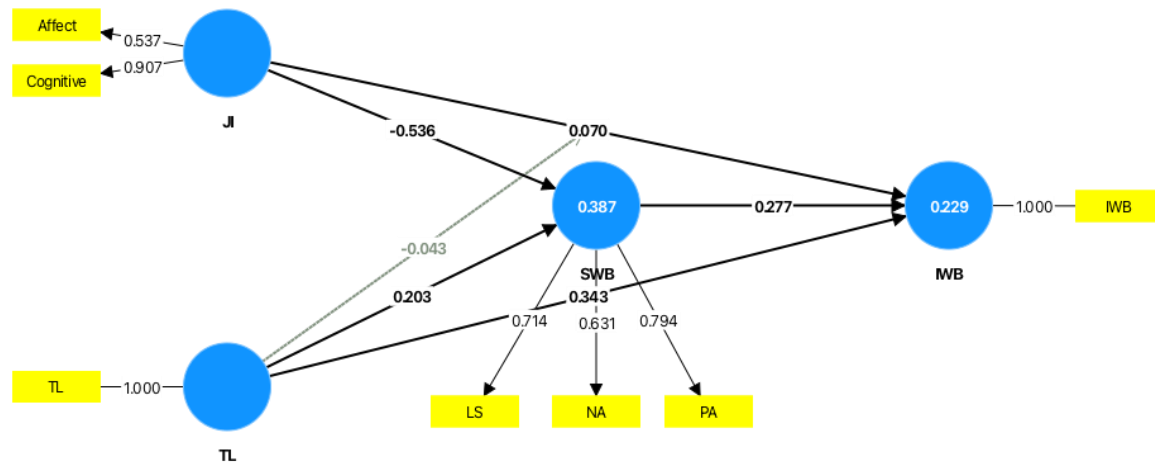


Figure 2. PLS-SEM Second Stage Results

In the second stage, reliability analysis was performed only for higher-order constructs comprising multiple dimensions, namely job insecurity and subjective well-being. As shown in **Table 4**, both constructs exceeded the minimum ρC threshold of .70, with values of .701 for job insecurity and .758 for subjective well-being, indicating acceptable internal consistency. The AVE values—.556 for job insecurity and .513 for subjective well-being—also met the convergent validity criterion of .50 or higher. Overall, these findings confirm that the higher-order constructs in the model demonstrate adequate reliability and convergent validity, supporting their inclusion in the structural model analysis.

Table 4. HOCs Reliability and Convergent Validity

	ρC	AVE
<i>Job Insecurity</i>	.701	.556
<i>Subjective Well-Being</i>	.758	.513

The Fornell–Larcker criterion further confirmed that discriminant validity was achieved. As shown in **Table 5**, the square root of the AVE (diagonal values) for each construct exceeded its correlations with any other construct in the same column. For instance, the square root of the AVE for subjective well-being is .716, which was higher than its strongest correlation—with innovative work behavior (.357) and with transformational leadership (.347). A similar pattern was observed for other constructs, such as innovative work behavior (1.000), job insecurity (.745), and transformational leadership (1.000), each shared more variance with its own indicators than with any other construct. These results provided strong evidence that discriminant validity was upheld.

Table 5. HOCs Discriminant Validity (Fornell-Larcker Criterion)

	1	2	3	4
1 Innovative work behavior	1.000			
2 Job insecurity	-.190	.745		
3 Subjective well-being	.357	-.591	.716	
4 Transformational leadership	.415	-.267	.347	1.000

Structural Model Evaluation

Before assessing the structural model, collinearity among latent variables was examined. Consistent with the measurement model assessment, the Variance Inflation Factor (VIF) values were calculated for all constructs. As shown in **Table 6**, all VIF values were below the threshold of 3, indicating no collinearity issues in the model ([Hair et al., 2019, 2022](#)). To assess multicollinearity, we examined variance inflation factor (VIF) values for all constructs. All VIF values were below the conservative threshold of 3.3, indicating the absence of multicollinearity. Following ([Kock et al., 2021](#)), this also suggests that the model is unlikely to suffer from common method bias, as full collinearity assessment with VIF values below 3.3 is considered a robust test compared to the traditional Harman's single-factor test ([Podsakoff et al., 2024](#)).

Tabel 6. Collinearity Statistics

Constructs		VIF
Innovative work Behavior		1.000
Job insecurity	Affective	1.018
	Cognitive	1.018
Transformational leadership		1.000
Subjective well-being	Life satisfaction	1.164
	Positive affect	1.135
	Negative affect	1.114

The main evaluation criteria for the structural model included the algebraic sign (whether the relationship was positive or negative), the size or magnitude (the strength of the relationship as reflected in the path coefficient), and the statistical significance of the paths, followed by the coefficient of determination (R^2) and effect size (f^2). In terms of algebraic sign, all significant relationships aligned with the hypothesised directions. As presented in **Table 7**, transformational leadership and subjective well-being exhibited positive and significant effects on innovative work behavior, whereas job insecurity had a negative and significant effect on subjective well-being. The indirect effects also confirmed that both transformational leadership and job insecurity influenced innovative work behavior through subjective well-being—transformational leadership's indirect effect was positive, while job insecurity's indirect effect was negative.

Bootstrapping results using a one-tailed test at the 5% significance level showed that the path from transformational leadership to innovative work behavior ($\beta = .343$, $p < .001$), subjective well-being to innovative work behavior ($\beta = .277$, $p < .001$), job insecurity to subjective well-being ($\beta = -.536$, $p < .001$), job insecurity to innovative work behavior through subjective well-being ($\beta = -.149$, $p < .001$), transformational leadership to subjective well-being ($\beta = .203$, $p < .001$), and transformational leadership to innovative work behavior through subjective well-being ($\beta = .056$, $p < .001$) were significant. In contrast, the path from job insecurity to innovative work behavior ($\beta = .070$, $p = .111$) and the interaction effect of transformational leadership and job insecurity on innovative work behavior ($\beta = -.043$, $p = .135$) were not significant, leading to the rejection of Hypotheses 1 and 8.

The structural model results indicate an inconsistent mediation pattern between job insecurity and innovative work behavior. Specifically, job insecurity significantly reduced subjective well-being ($\beta = -.536$, $p < .001$), and this lowered well-being in turn negatively predicted innovative behavior (indirect effect: $\beta = -.149$, $p < .001$). However, the direct path from job insecurity to innovative work behavior was non-significant ($\beta = .070$, $p = .111$). This suggests a potential suppression effect, where the direct impact of job insecurity on innovation appears absent, but once subjective well-being is introduced as a

mediator, the underlying negative influence becomes evident. Theoretically, this aligns with the Job Demands–Resources (JD-R) framework and Transactional Stress Theory, which posit that job insecurity primarily depletes psychological resources, reducing well-being, and thereby diminishing employees' capacity for innovative engagement. In such cases, the detrimental role of insecurity is not manifested in a straightforward direct effect but operates indirectly through the erosion of subjective well-being, highlighting the centrality of psychological resources as the pathway linking job demands to innovation.

Table 7. Hypothesis Testing Results

	β	<i>t</i> -value	<i>p</i> -values	Decision (sig. <0.05)
H1. JI -> IWB	.070	1.222	.111	Rejected
H2. TL -> IWB	.343	7.103	.000	Accepted
H3. SWB -> IWB	.277	4.888	.000	Accepted
H4. JI -> SWB	-.536	14.249	.000	Accepted
H5. JI -> SWB -> IWB	-.149	4.524	.000	Accepted
H6. TL -> SWB	.203	5.437	.000	Accepted
H7. TL -> SWB -> IWB	.056	3.539	.000	Accepted
H8. TlxJI -> IWB	-.043	1.105	.135	Rejected

JI: job insecurity, TL: transformational leadership, SWB: subjective well-being, IWB: innovative work behavior,

Regarding explanatory power, **Table 8** shows that innovative work behavior had a coefficient of determination (R^2) value of .229 and subjective well-being had an R^2 value of .387. Based on established benchmarks ([Henseler, 2009](#); [Hair 2022](#)), R^2 values of approximately .75, .50, and .25 are typically interpreted as substantial, moderate, and weak, respectively. This means that the model explained 22.9% of the variance in innovative work behavior (weak) and 38.7% of the variance in subjective well-being (moderate).

Table 8. Coefficient of Determination Results

Constructs	R^2
Innovative work behavior	.229
Subjective well-being	.387

Effect size (f^2) results in **Table 9** indicate that the path from job insecurity to subjective well-being had the largest impact ($f^2 = .436$, large), followed by the path from transformational leadership to innovative work behavior ($f^2 = .130$, medium) and the path from subjective well-being to innovative work behavior ($f^2 = .061$, small). According to [Cohen \(1988\)](#), f^2 values greater than approximately .35, .15, and .02 are interpreted as large, medium, and small effects, respectively, with values lower than this threshold considered negligible. All other relationships had effect size values within this negligible range.

Table 9. Effect Size Results

Paths	f^2
Job insecurity -> innovative work behavior	.004
Transformational leadership -> innovative work behavior	.130
Subjective well-being -> innovative work behavior	.061
Job insecurity -> subjective well-being	.436
Transformational leadership -> subjective well-being	.063
Transformational leadership x Job insecurity -> innovative work behavior	.003

Discussion

Job Insecurity, Subjective Well-Being, and Innovative Work Behavior

In this study, job insecurity showed no significant direct effect on innovative work behavior, diverging from studies showing its negative impact ([De Spiegelaere et al., 2014b](#); [Van Hootegeem et al., 2019](#)). This may be explained by the sample's demographic profile, dominated by Generation Z (60%) and Millennials (39%), who are purpose-driven, growth-oriented, and adaptable to technological change ([Deloitte, 2025](#)). These generations are intrinsically motivated, seeking meaning in work (Schroth, 2019), and shaped by experiences of global and national instability ([Parker & Igielnik, 2020](#)), making employment instability more normalized. The [Deloitte \(2025\)](#) Global Survey further highlights that 89% of Gen Z and 92% of Millennials consider purpose a central factor for job satisfaction, demonstrating that work is valued not merely as a source of income but as a means of achieving personal growth and social contribution. Similarly, [Bierbrier \(2022\)](#) found that Gen Z prioritize instrumental, cognitive, and altruistic work values over prestige, emphasizing their long-term development orientation.

Moreover, these cohorts have been continuously exposed to socio-economic turbulence, such as economic crises, technological disruption, and the COVID-19 pandemic, which has normalized uncertainty in their career outlooks. Studies on Gen Z during the COVID-19 crisis also suggest that this generation treats uncertainty as part of the “new normal,” adapting by valuing resilience, autonomy, and work–life balance. Consequently, job insecurity may be perceived less as a threat and more as an expected element of the start-up work environment. This generational orientation helps explain why transformational leadership did not significantly moderate the job insecurity–innovative work behavior link. Instead, transformational leadership appears more effective in amplifying positive drivers, such as enhancing subjective well-being, rather than directly buffering the negative impact of job insecurity. This aligns with the broader JD-R perspective that job resources are most effective in fostering motivation and well-being, but their buffering role against severe negative demands may be limited ([Bakker & Demerouti, 2017](#); [Shao et al., 2022](#)).

They often prioritize value alignment, self-development, and continuous learning over traditional career stability ([Barhate & Dirani, 2022](#); [Bohdziewicz, 2016](#); [Grow & Yang, 2018](#); [Iorgulescu, 2016](#); [Maloni et al., 2019](#)) and demonstrate high self-confidence and career clarity ([Silinevica & Meirule, 2019](#)), enabling job mobility ([Barhate & Dirani, 2022](#)).

These findings align with previous research in different contexts. For instance, [Baidun et al. \(2024\)](#) highlighted that proactive personality and supportive school climate fostered innovative behavior among santri, while ([Ogunola, 2024](#)) confirmed that supportive working conditions predict employee well-being in broadcasting organizations. [Sari et al. \(2025\)](#) emphasized the role of organizational learning culture and resilience in sustaining engagement, and ([Friedline et al., 2021](#)) demonstrated how resilience reduces negative effects of economic stress on families.

Job insecurity may thus be less threatening, as both generations exhibit flexible career orientations and persistence, often reflected in job-hopping to broaden opportunities, enhance skills, and accelerate progression ([Naresh & Rathnam, 2015](#); [Ramadhani et al., 2023](#); [Tran et al., 2025](#); [Utami et al., 2025](#); [Wallen, 2024](#)). Digital work opportunities and technology-based economies further strengthen their autonomy in navigating dynamic labor markets. In start-up environments, where innovation is embedded in daily work and uncertainty is the norm ([Arcuri et al., 2024](#); [Barkoczy & Wilkinson, 2019](#); [Silva et al., 2020](#); [Skala, 2019](#)), the fear of job loss may not diminish the drive to innovate.

While most studies report a negative link between job insecurity and innovative work behavior ([Aliane et al., 2023](#); [Montani et al., 2021](#); [Nguyen & Petchsawang, 2024](#); [D. Wang et al., 2019](#); [Yang et al., 2024](#)) some show context-dependent effects. For example, [Adrian et al. \(2022\)](#) found that job insecurity increased innovative behavior in hotels during COVID-19, and [Y. Li & Li \(2022\)](#) reported both positive and negative pathways through proactive and withdrawal behaviors, respectively.

In this study, job insecurity affected innovative work behavior only indirectly, through subjective well-being, indicating a full mediation effect. In other words, higher job insecurity led to lower subjective well-being, which in turn reduced employees' tendency to engage in innovative behavior. This aligns with Conservation of Resources Theory ([Fredrickson, 2001](#)), which suggests that fears of job loss drain employees' psychological resources ([Stankevičiūtė et al., 2021](#)). It is also consistent with Transactional Stress Theory, which explains that when individuals perceive a stressor, such as job insecurity, as overwhelming and beyond their coping capacity, it triggers negative psychological reactions ([Nath et al., 2024b](#)). Similarly, [Stiglbauer & Batinic \(2015\)](#) found that job insecurity lowers well-being and increases depressive symptoms.

Generational characteristics may also explain the mediation. Generation Z and Millennials place higher value on mental health and well-being than previous generations ([Barker, 2024](#); [Segel & Hatami, 2024](#)). According to [Deloitte \(2025\)](#), among those with high well-being, 67% of Generation Z and 72% of Millennials felt their work made a meaningful societal contribution, compared with only 44% and 46%, respectively, among those with low well-being. This aligns with the finding that subjective well-being fully mediates the job insecurity–innovative work behavior relationship in the start-up context.

Transformational Leadership, Subjective Well-Being, and Innovative Work Behavior

This study found that transformational leadership positively influences innovative work behavior, consistent with prior research ([Afsar et al., 2014](#); [Afsar & Umrani, 2020b](#); [Bak et al., 2022](#); [Chang et al., 2017](#); [Karimi et al., 2023](#); [Knezović & Drkić, 2021](#); [Li et al., 2019](#)). Characterized by seven components consist: vision, staff development, supportive leadership, empowerment, innovative thinking, lead by example, and charisma ([Carless et al., 2000b](#)), this leadership style offers an effective framework for fostering employee skills ([Agaoglu et al., 2025](#)) and motivating members to achieve shared goals ([Ibrahim et al., 2022](#)). In start-ups, where uncertainty and rapid change prevail, supportive and visionary leaders not only encourage new ideas but also create the psychological safety needed for risk-taking in innovation.

Transformational leadership enhances organizational learning and knowledge sharing, further driving employee innovation ([Khan & Khan, 2019](#)). By shaping values, beliefs, and motivations ([Le, 2020](#)), it encourages employees to adopt fresh perspectives and address challenges innovatively ([Karimi et al., 2023](#); [Podsakoff et al., 1990](#)). Given that Generation Z and Millennials value autonomy, self-development, and meaningful work ([Deloitte, 2025](#); [Krishna & Agrawal, 2024](#); [Ulrych, 2021](#)), transformational leaders can increase engagement in innovative processes ([Ibrahim et al., 2022](#)). This aligns with studies showing its effectiveness for these generations ([Fadila et al., 2025](#); [Kwartawaty et al., 2024](#); [Siregar et al., 2023](#)). Gen Z prefers leaders who offer recognition, constructive and ongoing feedback, and opportunities for growth ([Achmad et al., 2023](#); [Chang et al., 2023](#); [Kirchmayer & Fratričová, 2018](#)), all of which match transformational leadership traits ([Carless et al., 2000b](#)).

Beyond its direct effect, transformational leadership also promotes innovative work behavior indirectly by enhancing employees' subjective well-being. This mediating role is supported by studies linking transformational leadership to higher subjective well-being ([Liu et al., 2022](#); [Sucahyo, 2019](#)) and subjective well-being to innovative work behavior ([Wang et al., 2017](#)). Transformational leaders fulfill basic psychological needs for autonomy, competence, and relatedness ([Fredrickson, 2001](#); [Ryan & Deci, 2000](#)) which sustain well-being. Employees with high subjective well-being are more likely to propose new ideas, experiment with different approaches, and persist through challenges, as positive emotions broaden cognition and behavior, fueling creativity vital to innovation ([Fredrickson, 2001](#)).

[Deloitte \(2025\)](#) further highlights leadership's role in Generation Z's well-being: those who feel valued and recognized are far more likely to report good mental health (61% of Gen Z and 68% of Millennials). Satisfaction with career development opportunities also correlates with better well-being and consistent with transformational leadership's emphasis on individual appreciation, constructive feedback, and empowerment for growth.

The Role of Transformational Leadership in Moderating the Effect of Job Insecurity on Innovative Work Behavior

The findings showed that transformational leadership did not moderate the relationship between job insecurity and innovative work behavior. This contrasts with prior studies suggesting that transformational leadership can buffer the effects of job demands ([Tummers & Bakker, 2021](#)) or moderate relationships involving personal traits and accountability ([Vo et al., 2024b](#)). Within the JD-R framework ([Bakker & Demerouti, 2017](#)), leadership is considered a job resource that may buffer demands, but its effectiveness depends on the type and severity of the demand. Under strong negative pressures such as job insecurity, employees' psychological resources may already be depleted, limiting the protective role of leadership. Evidence from ([Shao et al., 2022](#)) similarly points to inconsistent moderating effects of leadership when threats are severe.

Rather than neutralizing insecurity, transformational leadership seems more effective in amplifying positive drivers such as well-being, motivation, and engagement ([Rademaker & Süß, 2025](#)). This interpretation aligns with broader research on social buffering, showing that leadership and support are more reliable in fostering resilience and health than eliminating the harm of adverse conditions ([Pladdys, 2024](#)). Consistent with this, our study found that transformational leadership directly promoted innovative work behavior and enhanced well-being, but did not mitigate the negative psychological effects of job insecurity. Moreover, the absence of a direct JI-IWB relationship means there was no base effect for leadership to moderate. Instead, subjective well-being fully mediated the link, underscoring the central role of employees' psychological states in enabling innovation under uncertainty.

Limitations and Further Research Suggestions

This study has several limitations. Its cross-sectional design restricts the ability to establish causal relationships between job insecurity, transformational leadership, subjective well-being, and innovative work behavior. A longitudinal approach could offer deeper insights into how these relationships evolve over time, particularly within the dynamic environment of start-ups. Furthermore, the study's focus on start-up employees in Indonesia provides valuable contextual understanding but limits the generalizability of the findings to corporate or start-up settings in different cultural and economic contexts.

Building on the finding that subjective well-being significantly mediates the effects of job insecurity and transformational leadership on innovative work behavior, future research should examine additional antecedents of well-being that may further enhance innovation in start-up contexts, such as perceived organizational support, job autonomy, work engagement, leader-member exchange, psychological capital, and perceptions of meaningful work. Given that the direct path from job insecurity to innovative work behavior was non-significant, subsequent studies could also explore alternative psychological mechanisms linking these variables. Moreover, the absence of a moderating effect of transformational

leadership suggests the need to investigate boundary conditions for its effectiveness, incorporating contextual factors such as team climate, trust in leaders, and individual differences. Methodologically, adopting longitudinal designs would allow researchers to capture the dynamic and potentially reciprocal nature of these relationships over time, offering a more robust understanding of innovation processes under high uncertainty.

Conclusion

This study provides important insights into the dynamics of innovation in start-up organizations. The findings demonstrate that job insecurity does not directly influence innovative work behavior, but exerts its impact through subjective well-being, confirming a full mediating effect. In contrast, transformational leadership significantly promotes innovative work behavior, both directly and indirectly by strengthening employees' well-being, yet it does not moderate the job insecurity–innovation relationship. These results underline the central role of subjective well-being as a psychological mechanism that channels both positive and negative workplace experiences into innovative outcomes.

Theoretically, this research extends the Job Demands–Resources (JD-R) framework by positioning subjective well-being as a critical mediator that links job demands (job insecurity) and job resources (transformational leadership) to innovation. Practically, it highlights that start-ups cannot rely solely on leadership or contextual resources; instead, employee well-being must be treated as a strategic priority. Leaders in start-up environments should focus on creating psychologically supportive climates, empowering teams, and recognizing individual contributions, while organizations should integrate well-being initiatives into their core strategies such as structured reflection sessions, access to counseling, and peer support systems.

These conclusions also carry generational relevance. Given that Generation Z and Millennials dominate the start-up workforce and place high value on mental health, work life balance, and meaningful work, interventions that foster resilience, psychological safety, and transparent communication are increasingly crucial. In sum, this study emphasizes that innovation in start-ups is inseparable from the well-being of their employees, offering both theoretical advancement and practical guidance for sustaining competitiveness in uncertain environments.

Acknowledgment

This work was financially supported by the Kementerian Pendidikan Tinggi, Sains dan Teknologi Direktorat Riset, Teknologi, dan Pengabdian Kepada Masyarakat. Contract Number: 083/C3/DT.05.00/PL/2025 28 Mei 2025 and UNJ No. 4/UN39.14/C3/DT.05.00/PPS PTM/PL/2025 3 JUNI 2025

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