

Transformational Leadership as a Moderator of the Relationship between Openness to Experience and Innovative Work Behavior among Startup Employees in Indonesia

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ARTICLE INFO

Article History

Received :14-06-2026
Revised :20-08-2026
Accepted :01-09-2026
Published :22-09-2026

Keywords

Innovative Work Behavior
Moderation
Openness to Experience
Transformational Leadership

DOI:

<https://doi.org/10.61994/jpss.v4i4.2291>

ABSTRACT

Innovative work behavior is vital for startup competitiveness in dynamic environments. This study examined the effect of openness to experience on innovative work behavior and investigated the moderating role of transformational leadership among Indonesian startup employees. Using a quantitative cross-sectional design, data were collected from 161 purposively sampled employees via the Innovative Work Behaviour Scale, the NEO-FFI (Openness dimension), and the MLQ Form 5X, then analyzed using Moderated Regression Analysis (MRA). The results revealed that openness to experience positively and significantly predicted innovative work behavior. However, transformational leadership significantly moderated this relationship in a negative direction stronger transformational leadership weakened the positive effect of openness to experience. These findings suggest that in startup settings prioritizing flexibility and autonomy, open employees innovate more effectively when granted independent discretion rather than intensive leadership direction. This study extends organizational psychology literature by showing that transformational leadership does not universally enhance innovation; its effectiveness hinges on the alignment between leadership style and employee personality traits.

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Introduction

The development of startup companies in Indonesia has shown considerable change in recent years. Data from the Ministry of Communication and Informatics indicate that Indonesia ranked fifth worldwide, with 2,193 startups in 2019 (Kominfo RI, 2019). Nevertheless, growth in the number of startups has not always been accompanied by organizational sustainability. In 2023, at least 14 startups in

Indonesia reportedly ceased operations. According to information published by Katadata in 2023, maintaining business continuity amid competition and market uncertainty remains a challenge (Setyowati, 2023). In addition, a CB Insights report (2026) indicates that startup failure is commonly associated with a mismatch between products or services and market needs, limited resources, and a poor ability to adapt to changes in the business environment. These conditions underscore the importance of the capacity to innovate for sustaining startup companies and their competitiveness.

As organizations operating in dynamic environments, startups need employees who can generate, develop, and implement new ideas at work. This capacity is reflected in innovative work behavior (IWB), individual behavior encompassing opportunity exploration, idea generation, idea promotion, and the implementation of new ideas that benefit the organization (De Jong & Den Hartog, 2010; West & Farr, 1989). Thus, organizational innovation depends not only on company strategy but also on individual characteristics that support sustained innovative behavior.

Research has shown that innovative work behavior is influenced by interactions between individual characteristics and organizational factors (Jameel et al., 2025; Karimi et al., 2023). One individual characteristic consistently associated with innovative behavior is openness to experience (OTE), a dimension of the Big Five personality framework reflecting openness to new experiences, curiosity, cognitive flexibility, and a willingness to consider different perspectives (Goldberg, 1992). Individuals with high OTE tend to find it easier to explore alternative solutions, develop new ideas, and adapt to changes in the workplace. Recent research also indicates that people with these characteristics are more likely to engage in innovative behavior because they can use new experiences as sources of creativity and learning (Rua & Carvalho, 2023; Saranani et al., 2026).

In addition to individual characteristics, innovative work behavior is influenced by contextual factors, particularly leadership. Transformational leadership is a leadership style that inspires and motivates employees, provides intellectual stimulation, and encourages the development of their potential, thereby supporting creativity and innovation (Avolio et al., 1999). Studies report a positive association between transformational leadership and innovative work behavior because this style can create a workplace that supports creativity, learning, and risk taking (Afsar & Umrani, 2019; Karimi et al., 2023). However, research findings also indicate that the influence of leadership on innovation is not consistent across all organizational contexts.

In startup companies, which emphasize flexibility, rapid decision making, and high autonomy, leadership practices may affect the relationship between individual characteristics and innovative work behavior. Individuals with high openness to experience already have an intrinsic drive to explore and develop new ideas. Under these circumstances, overly dominant leadership direction may limit opportunities for exploration and prevent individuals from expressing their creativity fully (Rua & Carvalho, 2023). Transformational leadership may therefore not only affect innovative work behavior directly but also alter the strength of the relationship between individual characteristics and that behavior.

Although the relationships among openness to experience, transformational leadership, and innovative work behavior have been widely studied, most earlier studies have treated transformational leadership as a direct predictor or as a factor that strengthens innovative work behavior (Afsar & Umrani, 2019; Jameel et al., 2025; Karimi et al., 2023). Few studies have examined transformational leadership as a moderator of the relationship between openness to experience and innovative work behavior, particularly in Indonesian startup companies. More significantly, previous research has generally assumed that transformational leadership always benefits innovation, paying less attention to the possibility that leadership effectiveness varies according to individual characteristics and organizational context. Yet startups differ from more established organizations: they typically have more flexible structures, greater work autonomy, faster decision-making processes, and continuing demands for adaptation. These characteristics may allow individuals with high openness to experience to explore and develop ideas independently, meaning that transformational leadership may not always strengthen their innovative work behavior.

In light of this gap, this study aims to analyze the effect of openness to experience on innovative work behavior and test the moderating role of transformational leadership among startup employees in Indonesia. Beyond testing whether transformational leadership plays a role in this relationship, the study explores whether leadership effectiveness depends on the fit between employees' personality characteristics and the startup organizational context. It is therefore expected to contribute to the industrial and organizational psychology literature by showing that transformational leadership does not always strengthen innovative work behavior; its effectiveness is contextual and influenced by the characteristics of the individuals being led. Based on the theoretical review and findings from previous studies, the following hypotheses are proposed:

H1: Openness to experience positively affects innovative work behavior among startup employees.

H2: Transformational leadership moderates the relationship between openness to experience and innovative work behavior among startup employees.

Method

This study employed a quantitative, cross-sectional design to test the effect of openness to experience on innovative work behavior and the moderating role of transformational leadership. The cross-sectional design was selected because all variables were measured at a single point in time to examine their relationships without manipulating the study conditions (Creswell & Creswell, 2022).

A total of 170 respondents participated in the study. The data were then screened to ensure that respondents met the study criteria; 161 respondents met the required criteria. Participants were selected using purposive sampling, in which the sample is determined according to characteristics relevant to the research aims (Etikan et al., 2016). The inclusion criteria were (1) employment at a digital technology startup and (2) at least one year of service. The tenure criterion was intended to ensure that participants had sufficient understanding of the organizational system, work processes, and workplace dynamics.

The study used three self-report psychological questionnaires: the Innovative Work Behaviour Scale (IWBS), the NEO Five-Factor Inventory (NEO-FFI), and the Multifactor Leadership Questionnaire (MLQ Form 5X). All three instruments used Likert-type response formats, with higher scores indicating higher levels of the respective constructs (Azwar, 2022). Before data collection, the instruments underwent language adaptation to ensure equivalence of meaning with the originals and suitability for the Indonesian cultural context. This process followed the cross-cultural adaptation guidelines developed by Beaton et al. (2000), including forward translation, back-translation, and expert review.

Forward translation was performed by two bilingual Indonesian–English translators. One translator had expertise in industrial and organizational psychology and therefore understood the psychological concepts underlying the instruments; the other was an independent translator who was not involved in the study. The translations were subsequently back-translated by an independent bilingual translator to assess the equivalence of meaning between the adapted versions and the original instruments. The research team discussed any differences identified in this process until it reached final versions with conceptual and linguistic equivalence.

After translation, all instruments underwent expert review by two specialists in industrial and organizational psychology experienced in developing, adapting, and

evaluating psychological measures. The review focused on conceptual appropriateness, clarity of wording, equivalence of translated meaning, and the relevance of each item to its intended construct. The experts' feedback informed revisions to the instrument wording before use in the study. Because the expert review formed part of the cross-cultural adaptation process to establish conceptual, linguistic, and cultural equivalence, this study did not calculate quantitative content validity indices such as Aiken's V or the Content Validity Index (CVI). The revised instruments were then used in the main data collection, and their psychometric quality was evaluated through reliability testing.

Measurement

Innovative work behavior (IWB) was measured using the Innovative Work Behaviour Scale developed by De Jong and Den Hartog (2010). The instrument consists of 10 items representing four dimensions: idea exploration, idea generation, idea championing, and idea implementation. In this study, it showed good internal consistency (Cronbach's $\alpha = 0.821$).

Openness to experience (OTE) was measured using the Openness to Experience domain of the NEO Five-Factor Inventory (NEO-FFI), developed by Costa and McCrae (1992). The instrument consists of 12 items covering six facets: fantasy, aesthetics, feelings, actions, ideas, and values. Reliability testing indicated adequate internal consistency (Cronbach's $\alpha = 0.706$).

Transformational leadership was measured using the Multifactor Leadership Questionnaire (MLQ Form 5X), developed by Avolio et al. (1999). The short form consists of 20 items measuring four dimensions: idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration. It showed excellent reliability (Cronbach's $\alpha = 0.922$).

Data Analysis

Before data collection, all participants received information about the study aims, the voluntary nature of participation, data confidentiality, and respondent anonymity. They provided electronic informed consent before completing the questionnaire. Data were collected online through Google Forms over approximately two months. Responses that did not meet the study criteria or were incomplete were excluded from analysis.

Moderated Regression Analysis (MRA) was used to test the moderating role of transformational leadership in the relationship between openness to experience and innovative work behavior. Before hypothesis testing, regression assumptions concerning normality, multicollinearity, and autocorrelation were assessed to

evaluate the suitability of the regression model (Field, 2024). All statistical analyses were conducted using JAMOV version 2.3.18.

Results and Discussion

Results

The study included 161 employees of digital technology startup companies in Indonesia who met the inclusion criteria. Participants came from several startup sectors, including e-commerce, education technology (edtech), financial technology (fintech), media, and transportation. Most respondents were women (64%); men accounted for 36%. By work arrangement, the largest group worked from the office (WFO; 55.9%), followed by hybrid (30.4%), remote (8.1%), and work from home (WFH; 5.6%). This distribution indicates that most participants worked in startup environments that still combined flexible arrangements with an office presence.

Table 1. Demographic Characteristics of Participants

Characteristics	Category	n	%
Gender	Male	58	36.0
	Female	103	64.0
Working System	WFO	90	55.9
	Hybrid	49	30.4
	Remote	13	8.1
	WFH	9	5.6

The variable categorization in Table 2 shows that respondents tended to cluster in the high category. This pattern was most pronounced for innovative work behavior (93%), followed by transformational leadership (86%) and openness to experience (73%). Conversely, relatively few respondents fell in the low category for any of the three variables. Thus, the sample was dominated by individuals who tended to be innovative and open to new experiences and who perceived the leadership in their workplaces as transformational.

Table 2. *Distribution of Research Variables*

Category	Innovative Work Behavior	Openness to Experience	Transformational Leadership
High	93%	73%	86%
Moderate	6%	23%	8%
Low	1%	4%	6%

Before hypothesis testing, the regression model was evaluated to check its assumptions. The results indicated that the data met the normality assumption and showed no evidence of autocorrelation (Durbin–Watson = 1.72; $p = .062$). Likewise, a VIF of 1.03 and tolerance of 0.972 indicated no multicollinearity. With these assumptions met, the Moderated Regression Analysis (MRA) proceeded.

The analysis showed that openness to experience had a positive and significant effect on innovative work behavior (Estimate = 0.259; SE = 0.0656; Z = 3.94; $p < .001$). In other words, startup employees with higher openness to experience tended to exhibit stronger innovative work behavior. This finding supports the first hypothesis.

The interaction between openness to experience and transformational leadership was also significant (Estimate = -0.184; SE = 0.0598; Z = -3.08; $p = .002$). The negative interaction coefficient indicates that transformational leadership weakened the relationship between openness to experience and innovative work behavior. Thus, the effect of openness to experience on innovative work behavior was weaker when employees perceived stronger transformational leadership. This finding supports a moderating role for transformational leadership, but in a negative direction.

Table 3. *Moderated Regression Analysis*

Model	Estimate	SE	Z	p
Openness to Experience → Innovative Work Behavior	0.259	0.0656	3.94	< .001
Openness × Transformational Leadership	-0.184	0.0598	-3.08	.002

To clarify the form of moderation, a simple slope analysis was conducted at three levels of transformational leadership: low (-1 SD), mean, and high (+1 SD). The results indicated that the effect of openness to experience on innovative work behavior was strongest at low transformational leadership (Estimate = 0.4427, $p < .001$). The relationship remained significant at the mean level (Estimate = 0.2588, $p < .001$) but weakened at high transformational leadership (Estimate = 0.0750, $p = .039$). This pattern shows that increasing transformational leadership was accompanied by a gradual weakening of the relationship between openness to experience and innovative work behavior.

Table 4. *Simple Slope Analysis*

Level of Transformational Leadership	Estimate	SE	Z	p
Low (-1 SD)	0.4427	0.0937	4.723	< .001
Mean	0.2588	0.0672	3.850	< .001
High (+1 SD)	0.0750	0.0870	0.862	.0389

These findings reinforce the view that personality is an important determinant of work behavior. Individuals with high openness to experience tend to be more active in generating, developing, and realizing new ideas at work. In other words, personality characteristics provide an important foundation for innovative work behavior in the workplace. People who are open to experience generally show cognitive flexibility, strong curiosity, and a tendency to explore new possibilities.

These characteristics make them better prepared for changing work demands and more willing to develop ideas that have not been tried before. This finding is consistent with Saranani et al. (2026), who showed that openness to experience contributes to individuals' adaptability and performance in organizations.

Within the innovative work behavior framework, innovation does not end with the emergence of an idea; it also involves developing, promoting, and implementing that idea at work (De Jong & Den Hartog, 2010). Accordingly, individuals with high openness to experience are not merely idea generators but also agents of change capable of advancing the realization of ideas in work activities. This finding is consistent with George and Zhou (2001) and Woods et al. (2017), who showed that people with greater openness adapt more readily to change and more actively explore new possibilities at work.

Discussion

Although this study found that openness to experience is an important predictor of innovative work behavior, the analysis also showed that the relationship is influenced by an organizational contextual factor: transformational leadership. Innovative work behavior is shaped not only by individual characteristics but also by how those characteristics interact with the workplace. Previous studies have shown that leadership can strengthen innovative work behavior by creating an environment supportive of creativity, learning, and idea exploration (Javed et al., 2018; De Hoogh & Den Hartog, 2008). Similarly, empowering leadership has been shown to encourage innovative behavior by giving employees room to develop solutions independently (Etikariena, 2020). Transformational leadership has also consistently been linked to greater employee creativity and motivation, which in turn contribute to innovative work behavior (Jameel et al., 2025).

However, this study revealed a different pattern. Its findings differ from those of most previous studies, which present transformational leadership as a factor that consistently strengthens innovative work behavior. Transformational leadership did not always strengthen the relationship between openness to experience and innovative work behavior. Under some conditions, individuals with a natural inclination to explore and create may not need intensive leadership encouragement to behave innovatively. This finding indicates that leadership effectiveness is not universal but depends on individual characteristics and the organizational context in which people work.

This finding can be understood through the person–environment fit perspective, which emphasizes the importance of alignment between individual characteristics and the workplace (Kristof-Brown et al., 2005). Individuals with high

openness to experience generally have a strong inclination to think creatively, explore new experiences, and seek alternative solutions (McCrae & Costa, 1987). Consequently, an overly structured or directed work environment may reduce opportunities for exploration and potentially hinder innovation (Shalley et al., 2004; Zhou, 2003). In other words, individuals with strong exploratory characteristics do not necessarily gain additional benefits from highly intensive leadership. The effectiveness of transformational leadership in this study therefore depended on the fit between individual characteristics and the workplace, rather than solely on the intensity of leadership behavior.

Strong transformational leadership may also create high expectations about the direction of employees' work. In this situation, employees may be more inclined to follow the leader's established vision and direction than to develop ideas independently. This suggests that individual and contextual factors do not always reinforce one another; under certain conditions, they may substitute for one another in influencing innovative behavior (Hammond et al., 2011). This finding is also supported by research showing that leadership often influences innovation indirectly through organizational mechanisms such as governance and the quality of work relationships, as well as psychological factors such as trust and commitment (Bantam & Pradana, 2024; Bellibaş et al., 2026; Kurniyanta et al., 2026). Thus, leadership effectiveness depends not only on the style adopted but also on individual characteristics and the organizational conditions in which leadership is exercised. These findings suggest that the relationship between transformational leadership and innovative work behavior is contingent: the influence of leadership may vary with individual characteristics and organizational conditions.

The startup context offers a more specific explanation of these findings. Startups operate in dynamic, flexible, and uncertain environments in which work autonomy becomes increasingly important. Employees are expected to work independently, make rapid decisions, and adapt to continual change. In these circumstances, individuals with high openness to experience may thrive when they have ample room to explore ideas and try new approaches without being constrained by overly rigid structures. This context may also explain why the findings differ from earlier studies generally conducted in organizations with more formal and stable work structures (Kane et al., 2015; Nurcahyo et al., 2018; Salamzadeh & Kesim, 2015). In startups, autonomy is therefore an important condition that allows employees with high openness to experience to express their innovative potential fully.

Overall, this study shows that transformational leadership does not always strengthen the relationship between openness to experience and innovative work behavior; that relationship depends on the fit between individual characteristics and

organizational context. The study contributes theoretically by integrating personality and leadership perspectives to explain innovative work behavior. Its novel finding is that transformational leadership does not invariably reinforce innovation and may, under certain conditions, weaken the effect of individual characteristics on innovative work behavior.

Nevertheless, this study has a limitation: it included only one contextual variable and therefore did not fully capture the complexity of organizational dynamics. Future research should develop a more comprehensive model incorporating other variables, such as organizational culture, psychological safety, and work engagement, to better understand the mechanisms underlying innovative work behavior.

In practical terms, these findings suggest that startups should apply leadership styles more selectively. Leaders may not always need to provide intensive direction, particularly when working with employees who have high openness to experience. A more flexible leadership approach that allows autonomy and avoids excessive control may be more effective in encouraging innovative work behavior. Organizations should also create an environment that supports autonomy by allowing freedom in decision making, opportunities for experimentation, and tolerance of failure as part of learning, so that employees' innovative potential can develop fully. Accordingly, innovation strategies in startup companies should consider the fit between employee personality characteristics and a work environment that supports autonomy and idea exploration, alongside the choice of leadership style.

Conclusion

This study shows that openness to experience provides an important foundation for innovative work behavior: individuals who are more open to experience tend to be better prepared to explore ideas, respond to change, and develop ideas in dynamic workplaces. However, the findings also show that this potential does not develop equally well under all conditions. In some contexts, transformational leadership does not necessarily enhance innovation. When leadership direction becomes too dominant, individuals may have less room to explore. This suggests that innovation requires both direction and room to experiment. Innovative work behavior must therefore be understood in terms of the fit between individual characteristics and leadership style in a particular work context, especially in startups that demand flexibility and autonomy.

References

- Afsar, B., & Umrani, W. A. (2019). Transformational leadership and innovative work behavior: The role of motivation to learn, task complexity and innovation climate. *European Journal of Innovation Management*, 23(3), 402–428. <https://doi.org/10.1108/EJIM-12-2018-0257>
- Avolio, B. J., Bass, B. M., & Jung, D. I. (1999). Re-examining the components of transformational and transactional leadership using the Multifactor Leadership. *Journal of Occupational and Organizational Psychology*, 72(4), 441–462. <https://doi.org/10.1348/096317999166789>
- Azwar, S. (2022). *Metode penelitian psikologi* (II). Pustaka Pelajar.
- Bantam, D. J., & Pradana, W. D. (2024). Trust in leaders and organizational commitment study in generation z. *SCIENTIA: Social Sciences & Humanities*, 3(2), 63–66. <https://doi.org/10.51773/sssh.v3i2.282>
- Beaton, D. E., Bombardier, C., Guillemin, F., & Ferraz, M. B. (2000). Guidelines for the process of cross-cultural adaptation of self-report measures. *Spine*, 25(24), 3186–3191. <https://doi.org/10.1097/00007632-200012150-00014>
- Bellibaş, M. Ş., Polatcan, M., & Berkovich, I. (2026). Principal–teacher relationship profiles moderating the effects of transformational leadership on teacher innovation and resistance to change. *Educational Administration Quarterly*, 62(2), 312–359. <https://doi.org/10.1177/0013161X251386390>
- CB Insights. (2026). The top 9 reasons startups fail. *CB Insights*. <https://www.cbinsights.com/research/report/startup-failure-reasons-top/>
- Costa, P. T., & McCrae, R. R. (1992). The five-factor model of personality and its relevance to personality disorders. *Journal of Personality Disorders*, 6(4), 343–359. <https://doi.org/10.1521/pedi.1992.6.4.343>
- Creswell, J. W., & Creswell, J. D. (2022). *Research design: Qualitative, quantitative, and mixed methods approaches* (6th ed.). SAGE Publications.
- De Hoogh, A. H. B., & Den Hartog, D. N. (2008). Ethical and despotic leadership, relationships with leader's social responsibility, top management team effectiveness and subordinates' optimism: A multi-method study. *The Leadership Quarterly*, 19(3), 297–311. <https://doi.org/10.1016/j.leaqua.2008.03.002>
- De Jong, J., & Den Hartog, D. (2010). Measuring innovative work behaviour. *Creativity and Innovation Management*, 19(1), 23–36. <https://doi.org/10.1111/j.1467-8691.2010.00547.x>
- Etikan, I., Musa, S. A., & Alkassim, R. S. (2016). Comparison of convenience sampling and purposive sampling. *American Journal of Theoretical and Applied Statistics*, 5(1), 1–4. <https://doi.org/10.11648/j.ajtas.20160501.11>
- Etikariena, A. (2020). Peran gaya kepemimpinan pada perilaku kerja inovatif karyawan pada organisasi berbasis teknologi digital. *Jurnal Ecopsy*, 7(1), 48–63. <https://doi.org/10.20527/ecopsy.v7i1.8426>
- Field, A. P. (2024). *Discovering statistics using IBM SPSS statistics* (6th ed.). SAGE Publications.

- George, J. M., & Zhou, J. (2001). When openness to experience and conscientiousness are related to creative behavior: An interactional approach. *Journal of Applied Psychology, 86*(3), 513–524. <https://doi.org/10.1037/0021-9010.86.3.513>
- Goldberg, L. R. (1992). *The Development of Markers for the Big-Five Factor Structure. 4*, 26–42.
- Hammond, M. M., Neff, N. L., Farr, J. L., Schwall, A. R., & Zhao, X. (2011). Predictors of individual-level innovation at work: A meta-analysis. *Psychology of Aesthetics, Creativity, and the Arts, 5*(1), 90–105. <https://doi.org/10.1037/a0018556>
- Jameel, A., Guo, W., Hussain, A., & Kanwel, S. (2025). Enhancing innovative work behavior through transformational leadership in tourism and hospitality employees: The mediating role of intrinsic motivation and employee creativity. *BMC Psychology, 13*(1018), 1–12. <https://doi.org/10.1186/s40359-025-03305-8>
- Kane, G. C., Palmer, D., Phillips, A. N., Kiron, D., & Buckley, N. (2015). *Strategy, not technology, drives digital transformation*. MIT Sloan Management Review and Deloitte University Press.
- Karimi, S., Ahmadi Malek, F., Yaghoubi Farani, A., & Liobikienė, G. (2023). The role of transformational leadership in developing innovative work behaviors: The mediating role of employees' psychological capital. *Sustainability, 15*(2), 1267. <https://doi.org/10.3390/su15021267>
- Kominfo RI. (2019). *Laporan kinerja Kementerian Komunikasi dan Informatika 2019*. Kementerian Komunikasi dan Informatika Republik Indonesia. <https://www.komdigi.go.id/kinerja/laporan-tahunan/detail?judul=laporan-tahunan-kementerian-kominfo-tahun-2019>
- Kristof-Brown, A. L., Zimmerman, R. D., & Johnson, E. C. (2005). Consequences of individuals' fit at work: A meta-analysis of person–job, person–organization, person–group, and person–supervisor fit. *Personnel Psychology, 58*(2), 281–342. <https://doi.org/10.1111/j.1744-6570.2005.00672.x>
- Kurniyanta, A., Nuzula, N. F., Fahrudi, A. N. L. I., & Astuti, E. S. (2026). Developing a model of innovation capability and digital transformation in Indonesia's public sector: The role of leadership and IT governance. *Cogent Business & Management, 13*(1), 1–27. <https://doi.org/10.1080/23311975.2026.2637243>
- McCrae, R. R., & Costa, P. T. (1987). Validation of the five-factor model of personality across instruments and observers. *Journal of Personality and Social Psychology, 52*(1), 81–90.
- Nurcahyo, R., Ilhamsyah Akbar, M., & Sihono Gabriel, D. (2018). Characteristics of startup company and its strategy: Analysis of Indonesia fashion startup companies. *International Journal of Engineering & Technology, 7*(2.34), 44–47. <https://doi.org/10.14419/ijet.v7i2.34.13908>
- Rua, O. L., & Carvalho, A. R. (2023). Linking transformational leadership to start-ups creativity. *Revista de Gestão e Secretariado (Management and*

- Administrative Professional Review*), 14(7), 11650–11673.
<https://doi.org/10.7769/gesec.v14i7.2498>
- Salamzadeh, A., & Kesim, H. K. (2015). Startup companies: Life cycle and challenges. *Proceedings of the 4th International Conference on Employment, Education and Entrepreneurship (EEE)*. 4th International Conference on Employment, Education and Entrepreneurship (EEE).
<https://doi.org/10.2139/ssrn.2628861>
- Saranani, F., Adam, P., Ahmad, Armawaddin, M., Hasnita, N., & Almana, L. O. (2026). The effect of social identification, personality traits, and transformational leadership on employees performance at the regional parliament secretariat of Southeast Sulawesi province, Indonesia. *Multidisciplinary Science Journal*, 8(7), 1–7.
<https://doi.org/10.31893/multiscience.2026466>
- Setyowati, D. (2023). Daftar startup tutup selama 2023, melonjak dibanding 2022. *Katadata*. <https://katadata.co.id/digital/startup/658e563eda94d/daftar-startup-tutup-selama-2023-melonjak-dibanding-2022>
- Shalley, C. E., Zhou, J., & Oldham, G. R. (2004). The effects of personal and contextual characteristics on creativity: Where should we go from here? *Journal of Management*, 30(6), 933–958.
<https://doi.org/10.1016/j.jm.2004.06.007>
- West, M. A., & Farr, J. L. (1989). Innovation at work: Psychological perspectives. *Social Behaviour*, 4(1), 15-30.
- Woods, S. A., Mustafa, M. J., Anderson, N., & Sayer, B. (2017). Innovative work behavior and personality traits: Examining the moderating effects of organizational tenure. *Journal of Managerial Psychology*, 33(1), 29–42.
<https://doi.org/10.1108/JMP-01-2017-0016>
- Zhou, J. (2003). When the presence of creative coworkers is related to creativity: Role of supervisor close monitoring, developmental feedback, and creative personality. *Journal of Applied Psychology*, 88(3), 413–422.
<https://doi.org/10.1037/0021-9010.88.3.413>