

The Effect of Authentic Leadership on Psychological Capital, Work Engagement, and Innovative Behavior

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ABSTRACT

This study aims to analyze the effect of authentic leadership on psychological capital, work engagement, and innovative behavior among employees in service-based startup companies in Indonesia. In addition, this study examines the mediating role of psychological capital in the relationship between authentic leadership and work engagement, as well as the mediating role of work engagement in the relationship between authentic leadership and innovative behavior. This research uses a quantitative approach with a survey method involving 140 employees selected through purposive sampling. Data were analyzed using Structural Equation Modeling (SEM) with SmartPLS 4.0. The results show that authentic leadership has a positive and significant effect on psychological capital and work engagement. Psychological capital also has a significant positive effect on work engagement and acts as a partial mediator in the relationship between authentic leadership and work engagement. Furthermore, work engagement has a strong positive effect on innovative behavior and mediates the relationship between authentic leadership and innovative behavior. These findings indicate that authentic leadership plays a strategic role in enhancing employees' psychological conditions and engagement, which in turn fosters innovative behavior. This study contributes to the development of human resource management and organizational behavior literature, particularly in the context of dynamic startup environments.

INTRODUCTION

The development of startups in recent years has shown an increasingly significant role in stimulating the economy, generating employment, and creating new economic value (Bardazzi, 2020; Kriuchkova et al., 2025; Kumar, 2024). The main characteristics of startups—agility, flexibility, and willingness to take risks—enable these organizations to produce innovation breakthroughs and develop sustainable business models (Corvello et al., 2023). In addition to contributing to technological advancement, startups are also seen as agents of social change due to their ability to respond to various societal challenges and create value for communities. However, the success of startups does not solely depend on their ability to produce innovative products and services, but is also strongly determined by their capacity to attract, retain, and develop human resources with superior capabilities and potential (Harlin & Berglund, 2021).

Based on the latest data from Startup Ranking, the number of active startups in Indonesia is estimated to reach around 3.1 thousand companies by mid-2025, making Indonesia the country with the sixth-largest number of startups in the world. In addition to overall growth, October 2025 data shows that Indonesia has around 251 startups operating in

the transportation technology sector (road transport tech), which includes various application-based services such as ride-hailing and digital mobility solutions, including Gojek, Maxim Taxi, Soul Parking, and others. This indicates that startups in the transportation services sector are a significant part of Indonesia's technological innovation ecosystem, particularly in meeting the mobility needs of modern digital society.

Rapid growth in startups, especially in the transportation services sector, has increased the complexity of organizational and human resource management. A dynamic, competitive, and technology-driven work environment requires startup organizations not only to rely on product and service innovation, but also to ensure leadership that can effectively guide and empower employees. Leadership plays an important role in organizational success, particularly amid rapid economic development and increasingly complex global challenges. Effective and inspirational leaders not only maintain organizational stability but also encourage innovation in processes, products, strategies, and business behavior to improve company performance (Adam et al., 2020). In the startup industry, leadership that supports employee engagement and innovation is essential so that employees can adapt to change and contribute optimally. Authentic leadership is one leadership style considered capable of supporting employees in facing work challenges in dynamic industries such as startups. This leadership model emphasizes honesty, transparency, and alignment between leaders' personal values and organizational goals (George, 2003; Walumbwa et al., 2010). Authentic leadership builds credibility and gains employee trust through behavior grounded in strong moral and ethical values (Peus et al., 2012).

The impact of authentic leadership on employee performance can be explained through psychological capital (PsyCap). This concept refers to individuals' positive psychological state, consisting of four main dimensions: self-efficacy, hope, optimism, and resilience (Luthans et al., 2015). These four elements help build employees' psychological resilience against work pressure and increase motivation in facing professional challenges (Yuan et al., 2024). Employees with high PsyCap are more confident in completing tasks, more optimistic about achieving goals, and better able to recover from failure. In dynamic service startup environments, strong PsyCap helps employees remain motivated and adaptable to rapid change.

In addition to leadership and psychological capital, work engagement is an important factor determining the extent to which employees are actively involved in their work. Work engagement refers to employees' level of energy, commitment, and concentration in their work, comprising three main dimensions: vigor, dedication, and absorption (Schaufeli & Bakker, 2004). Bakker and Demerouti (2008) explain that work engagement is influenced by job demands, job resources, and personal resources. Employees with high engagement tend to be more productive, more loyal to the organization, and more likely to innovate in meeting customer needs. PsyCap plays an important role in increasing work engagement, as individuals with high optimism, hope, self-efficacy, and resilience are more likely to demonstrate stronger work commitment.

Employees with high engagement are not only more productive but also more likely to exhibit innovative behavior. Innovative behavior refers to individual actions involving the creation, development, and implementation of new ideas within an organization (Lukes & Stephan, 2017). Highly engaged employees are more motivated to engage in innovation

because they feel responsible for organizational growth and are driven to continuously adapt to change. In increasingly competitive business environments, employee innovative behavior is a key factor in maintaining startup competitiveness. This behavior reflects employee initiative in introducing new work processes, services, or more effective business strategies (Elidemir et al., 2020).

Previous studies have examined relationships among authentic leadership, psychological capital, work engagement, and innovative behavior in organizational contexts. Authentic leadership has been shown to play an important role in shaping employees' positive psychological states. Several studies indicate that authentic leadership positively affects psychological capital (Adil & Kamal, 2016; Niswaty et al., 2021; Rego et al., 2012; Wang et al., 2014; Woolley et al., 2011; Zubair & Kamal, 2015). In addition, authentic leadership contributes to increased work engagement, as shown in studies (Alok & Israel, 2012; Laguna et al., 2019; Niswaty et al., 2021; Stander et al., 2015; Walumbwa et al., 2010; Wang & Hsieh, 2013), which confirm a positive relationship between authentic leadership and work engagement. Furthermore, psychological capital has been shown to play an important role in enhancing work engagement. Employees with high self-efficacy, hope, optimism, and resilience tend to engage more fully—emotionally and cognitively—in their work (De Waal & Pienaar, 2013; Niswaty et al., 2021; Simons & Buitendach, 2013; Thompson et al., 2015). In line with this, several studies also show that psychological capital can mediate the relationship between authentic leadership and work engagement (Du Plessis & Boshoff, 2018; Mehdad & Sajadi, 2019; Niswaty et al., 2021; Zhong et al., 2016).

Work engagement has also been proven to encourage innovative behavior. Studies by Agarwal et al. (2012), Anindita & Rheinhard (2023), Burhan & Anindita (2023), De Spiegelaere et al. (2016), Laguna et al. (2017; 2019), and Salanova & Schaufeli (2008) conclude that work engagement significantly influences employees' tendency to generate, develop, and implement new ideas at work. Engaged employees are more motivated to innovate as a form of contribution to organizational progress.

However, most previous studies focus on direct relationships between authentic leadership and psychological capital or work engagement separately. In addition, studies examining the mediating role of work engagement in the relationship between authentic leadership and innovative behavior remain limited, particularly in dynamic, flexible, and high-pressure startup environments. Existing studies are generally conducted in more stable and formal sectors, such as manufacturing or government organizations, and therefore do not fully reflect rapidly changing, highly creative organizational contexts (Laguna et al., 2019; Niswaty et al., 2021). Work engagement, as a positive psychological state, has the potential to serve as a key mechanism linking authentic leadership to innovative behavior by enhancing intrinsic motivation, risk-taking willingness, and adaptability to dynamic work conditions (Amabile & Pratt, 2016; Laguna et al., 2019; Lv et al., 2022; Mehdad & Sajadi, 2019).

As competition in the modern workplace intensifies, a more comprehensive and integrative approach is needed to understand how authentic leadership influences work engagement through psychological capital, as well as how work engagement mediates the relationship between authentic leadership and innovative behavior. Based on these considerations, this study integrates four main variables—authentic leadership,

psychological capital, work engagement, and innovative behavior—into a single conceptual model. This study also examines the mediating role of psychological capital in the relationship between authentic leadership and work engagement, as well as the mediating role of work engagement in the relationship between authentic leadership and innovative behavior.

This study aims to analyze the influence of authentic leadership on psychological capital and work engagement, as well as to examine the role of psychological capital as a mediating variable in strengthening the relationship between authentic leadership and work engagement. In addition, this study also investigates the role of work engagement as a mediating variable in explaining the influence of authentic leadership on innovative behavior among employees in service-based startup companies in Indonesia. It is expected that the findings of this study will contribute theoretically to the development of human resource management and organizational behavior, as well as provide practical implications for startup leaders in developing leadership styles that foster innovation in the workplace.

METHOD

Bacteria *Wolbachia* inhibit the replication of dengue virus (DENV) in mosquitoes through metabolic alterations, especially competition for lipids and cholesterol. *Wolbachia* and DENV both require lipids to thrive; however, *Wolbachia* reduces the availability of cholesterol and certain lipids in mosquito cells, thereby disrupting DENV replication. In mosquitoes infected with DENV-3, lipid types such as sphingomyelin and cardiolipin were found to increase. However, their levels decreased when the virus was present alongside *Wolbachia* bacteria. This antagonistic interaction has also been observed in other studies, where lipid classes such as acyl-carnitine increased in mosquitoes infected with DENV and ZIKV, but decreased significantly in Aag2 cells containing the *Wolbachia* strain wMel.

Wolbachia reduces the availability of cholesterol and lipids through increased expression of Niemann-Pick type C2, sterol carrier protein 2, and calnexin 99. These components are associated with decreased fatty acid synthesis and LDL receptor expression, indicating disturbances in intracellular cholesterol transport. Cholesterol supplementation has been shown to restore viral replication in arthropod species such as *Drosophila* and *Aedes albopictus*. Meanwhile, other factors also play a role in lipid homeostasis. Insulin functions to promote fat storage in cells. A study shows that the *Wolbachia* strain wMel can reduce DENV and ZIKV replication by decreasing insulin receptor expression (Koh et al., 2020).

This study uses a quantitative approach to examine the relationship between variables, namely Authentic Leadership, Psychological Capital, Work Engagement, and Innovative Behavior. The research population consists of staff-level employees at transportation service startup companies, both permanent and contract employees from PT. GJ, PT. GR, and PT. MX, with a minimum working period of one year and an age range of 20–45 years. The age restriction refers to the prime-age worker category according to the International Labour Organization (ILO) and the productive adult age category according to the Ministry of Health of the Republic of Indonesia, where individuals in this phase demonstrate stable work participation and optimal productivity levels. The sample was determined using purposive sampling, with a total of 140 respondents, based on the guidelines of Hair et al.

(2019), which recommend at least five times the number of research indicators; this study uses 28 indicators.

Data collection was conducted using a survey method through online questionnaires distributed via Google Forms. The measurement instruments for the variables in this study were adapted from previous studies. The Authentic Leadership variable was measured using seven items from Neider & Schriesheim (2011). The Psychological Capital variable was measured using seven items from Luthans et al. (2015). The Work Engagement variable was measured using eight items adapted from Schaufeli & Bakker (2004), and Innovative Behavior was measured using six items from Purc & Laguna (2019). All items were assessed using a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree).

Before the main data collection, a pre-test was conducted with 30 respondents using IBM SPSS version 30.0, including validity and reliability tests. The validity test used bivariate analysis in SPSS, where an item is considered valid if the significance value (Sig. 2-tailed) is below 0.05, as suggested by Hair et al. (2019). The results showed that one item in the Work Engagement variable did not meet the validity criteria and was therefore excluded from the model. Meanwhile, all other items met the validity requirements and were retained for further analysis.

The reliability test was conducted using Cronbach's Alpha. An instrument is considered reliable if the Cronbach's Alpha value is above 0.70, indicating good internal consistency (Hair et al., 2019). Based on the results from 30 respondents, all questionnaire items demonstrated reliable values and were suitable for use in the main data collection phase. Thus, all remaining items across variables were deemed feasible for distribution. The final sample for the main study consisted of 140 respondents with 28 items.

This study uses a quantitative approach with the Structural Equation Modeling (SEM) method for data analysis. The data were processed using SmartPLS (Smart Partial Least Squares) version 4.0, conducted in three stages. The first stage is the evaluation of the measurement model (outer model), which ensures the validity and reliability of the constructs. The second stage is the evaluation of the structural model (inner model), which analyzes the relationships between latent variables and assesses the explanatory power of the model. The final stage is the evaluation of model fit (goodness of fit), which assesses how well the model fits the observed data.

The evaluation of the measurement model (outer model) assesses how well indicators represent the construct being measured. Indicator validity is assessed through outer loading values of at least 0.70, while convergent validity is assessed using the Average Variance Extracted (AVE), with a minimum threshold of 0.50. Discriminant validity is tested using the Fornell-Larcker criterion, where the square root of AVE must be greater than the inter-construct correlations. Construct reliability is assessed using Composite Reliability (CR) and Cronbach's Alpha, both required to exceed 0.70 to demonstrate internal consistency (Leguina, 2015).

At the structural model (inner model) stage, analysis focuses on relationships between latent variables. Path significance is tested using bootstrapping, with criteria of t-statistics > 1.96 and p-values < 0.05. The model's predictive power is assessed using R-square (R^2), categorized as weak (0.19), moderate (0.33), and strong (0.67), while effect size is evaluated

using F-square (f^2), categorized as large (0.35), medium (0.15), and small (0.02) (Savitri et al., 2021). Overall model fit is assessed using SRMR values, with an acceptable threshold below 0.08 (Hair et al., 2022).

RESULTS AND DISCUSSION

Based on data from 140 respondents who are employees of service-sector startup companies, it is known that the majority of respondents are women (57%), while 60 respondents are men (43%). In terms of age distribution, most respondents were in the 20–25 years age group (47%), followed by the 26–30 years group with 44 respondents (31%), 31–35 years with 23 respondents (16%), 36–40 years with 5 respondents (4%), and 41–45 years with 3 respondents (2%).

Regarding educational background, most respondents were bachelor's degree (S1) graduates, totaling 84 people (60%). Other respondents consisted of 28 high school/vocational school graduates (20%), 19 diploma holders (14%), and 9 master's/doctoral (S2/S3) graduates (6%). Based on length of employment, the majority of respondents had worked for 1–3 years (77 people; 55%), followed by 4–6 years (32 people; 23%), 7–9 years (18 people; 13%), and 10 years or more (13 people; 9%).

The next stage of the study involved testing the measurement model (outer model) using SmartPLS (Smart Partial Least Squares) version 4.0, conducted prior to hypothesis testing. This test aims to evaluate the validity and reliability of the constructs in the model. Referring to Hair et al. (2022), an indicator is considered valid if it has a loading factor value of ≥ 0.70 . The results of data processing show that all indicators of Authentic Leadership (AL) have loading factors ranging from 0.764–0.814; Innovative Behavior (IB) ranges from 0.784–0.831; Psychological Capital (PsyCap) ranges from 0.769–0.823; and Work Engagement (WE) ranges from 0.752–0.840. Thus, all indicators across constructs meet the required validity criteria.

The construct reliability test was conducted using Composite Reliability (CR), Cronbach's Alpha (CA), and Average Variance Extracted (AVE). According to Leguina (2015), CR and CA values must be ≥ 0.70 , while AVE must be ≥ 0.50 . The results show that all constructs meet these criteria: Authentic Leadership (AL) has CR = 0.919, CA = 0.898, and AVE = 0.619; Innovative Behavior (IB) has CR = 0.922, CA = 0.899, and AVE = 0.665; Psychological Capital (PsyCap) has CR = 0.923, CA = 0.903, and AVE = 0.632; and Work Engagement (WE) has CR = 0.937, CA = 0.923, and AVE = 0.650. These results confirm that all constructs are both reliable and valid.

Structural model analysis was then conducted to examine the ability of the independent variables (X) in explaining the dependent variables (Y) through the R-square values. The results show that Innovative Behavior has an R^2 value of 0.642, indicating that 64.2% of the variation in innovative behavior is explained by the model, while 35.8% is influenced by other factors outside the study. Psychological Capital has an R^2 value of 0.538, meaning 53.8% of its variation is explained by the model, with the remaining 46.2% explained by external factors. Work Engagement has an R^2 value of 0.644, indicating that 64.4% of its variation is explained by the model, while 35.6% is influenced by other variables not included in the study.

Overall, these R-square values indicate that the research model has relatively strong explanatory power, particularly for Innovative Behavior and Work Engagement, both exceeding 0.64. This suggests that the independent variables in the model contribute substantially to explaining the dependent variables. Although some variation is still explained by external factors, the model demonstrates adequate structural relevance for further analysis in organizational behavior research.

Following the R-square analysis, the F-square (f^2) test was conducted to assess the effect size of each relationship within the structural model. According to Hair et al. (2022), f^2 values of 0.02 indicate a small effect, 0.15 a medium effect, and 0.35 a large effect. The results show that Authentic Leadership has a large effect on Psychological Capital with an f^2 value of 1.162. Authentic Leadership also has a moderate effect on Work Engagement with an f^2 value of 0.201. Psychological Capital has a moderate effect on Work Engagement with an f^2 value of 0.286. In addition, Work Engagement has a large effect on Innovative Behavior with an f^2 value of 1.797.

Based on the above, the model explanation is as follows:

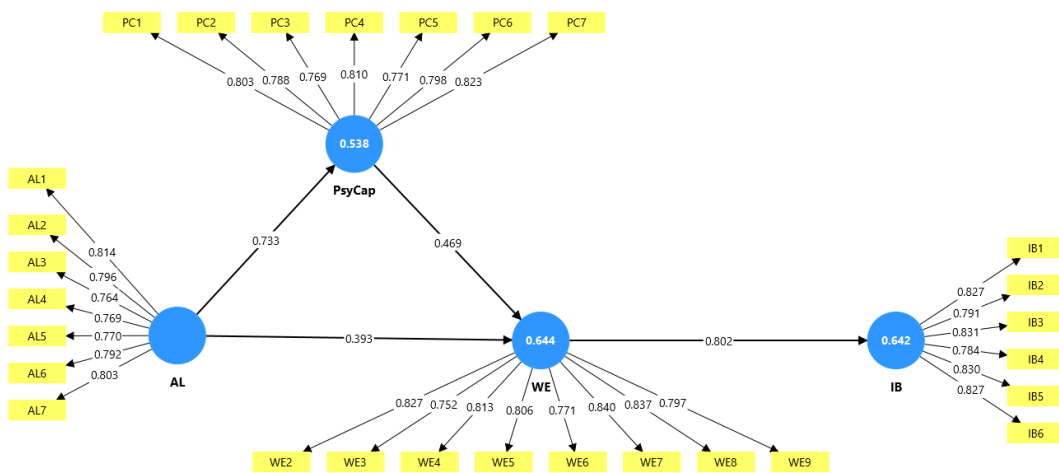


Figure 2. PLS-SEM Output Display

Based on the results of hypothesis testing, all hypotheses submitted in this study were declared approved because they met the significance criteria with a p -value below 0.05. A summary of the test results of each hypothesis is shown in Table 1 below:

Table 1. Summary of Hypothesis Testing Results in the Structural Model

Hipotesis	Hypothesis Statement	Path Coefficient (b)	T Statistics (1,96)	P Values (0,05)	Conclusion
H1	Authentic Leadership has a positive effect on <i>psycap</i>	0.733	7.939	0.000	Data Supporting Hypotheses
H2	Authentic Leadership has a positive influence on <i>Work Engagement</i>	0.394	2.552	0.011	Data Supporting Hypotheses

Hipotesis	Hypothesis Statement	Path Coefficient (b)	T Statistics (1,96)	P Values (0,05)	Conclusion
H3	<i>PsyCap</i> has a positive effect on <i>Work Engagement</i>	0.469	3.078	0.002	Data Supporting Hypotheses
H4	<i>Psychological Capital</i> Mediates the Relationship Between <i>Authentic Leadership</i> and <i>Work Engagement</i>	0.344	2.753	0.006	Data Supporting Hypotheses
H5	<i>Work Engagement</i> has a positive effect on <i>Innovative Behavior</i>	0.802	10.282	0.000	Data Supporting Hypotheses
H6	<i>Work Engagement</i> Mediates the Relationship Between <i>Authentic Leadership</i> and <i>Innovative Behavior</i>	0.315	2.380	0.017	Data Supporting Hypotheses

Source: Processed Research Data Using SmartPLS 4.0, 2026.

The results of the hypothesis test show that all hypotheses in this study are accepted, with a significance level of $p\text{-value} < 0.05$, thus it can be concluded that the correlation between variables in the research model is proven to be statistically significant.

The first hypothesis (H1) shows that *Authentic Leadership* has a positive effect on *Psychological Capital*, with a β path coefficient value of 0.733, a *T-statistical* value = 7.939, and a $p\text{-value}$ = 0.000. These results indicate that the higher the application of *Authentic Leadership*, the higher the level of *Psychological Capital* of employees.

The second hypothesis (H2) shows that *Authentic Leadership* has a positive effect on *Work Engagement*, with a value of $\beta = 0.394$, *T-statistic* = 2.552, and $p\text{-value}$ = 0.011. These results show that authentic leadership contributes to increasing employee engagement.

The third hypothesis (H3) shows that *Psychological Capital* has a positive effect on *Work Engagement*, with a value of $\beta = 0.469$, *T-statistic* = 3.078, and $p\text{-value}$ = 0.002. These findings indicate that employees who have higher *psychological capital* relatively show greater levels of work attachment.

The fourth hypothesis (H4) shows that *Psychological Capital* mediates the correlation between *Authentic Leadership* and *Work Engagement*, with a value of $\beta = 0.344$, *T-statistic* = 2.753, and $p\text{-value}$ = 0.006. These results show that the influence of *Authentic Leadership* on *Work Engagement* occurs through *Psychological Capital* as a mediating variable.

The fifth hypothesis (H5) shows that *Work Engagement* has a positive effect on *Innovative Behavior*, with a value of $\beta = 0.802$, *T-statistic* = 10.282, and $p\text{-value}$ = 0.000. These results show that the higher the level of employee work attachment, the higher the tendency of employees to display innovative behaviors in their work.

The sixth hypothesis (H6) shows that *Work Engagement* mediates the correlation between *Authentic Leadership* and *Innovative Behavior*, with a value of $\beta = 0.315$, *T-statistic* = 2.380, and *p-value* = 0.017. These results show that the impact of *Authentic Leadership* on *Innovative Behavior* occurs through *Work Engagement*.

Overall, the results of this hypothesis test show that *Authentic Leadership* has a role in building *Psychological Capital* and *Work Engagement*, which further contributes to the formation of *Innovative Behavior* in startup employees based on transportation services in Indonesia.

This study examines the influence of *authentic leadership* on employee *psychological capital* in service-based startup companies in Indonesia. The results of the study show that *authentic leadership* plays a significant role in strengthening the positive psychological condition of employees, which is reflected in increasing confidence, hope, optimism, and resilience in the face of work pressure. *Authentic leadership* is understood as a leadership style that emphasizes honesty, moral consistency, and relational openness, so as to be able to produce a psychologically safe work environment for employees. Such a safe and supportive work environment gives employees the opportunity to feel valued and trusted, which ultimately strengthens confidence in their abilities and readiness to face complex and dynamic work challenges. (Walumbwa et al., 2010) (Rego et al., 2012)

In the context of a fast-moving service-based startup full of uncertainty, authentic leadership is an important factor in building employee *psychological capital*. When leaders demonstrate moral integrity, openness of communication, and objectivity in decision-making, employees tend to develop a more optimistic outlook on the future and are able to better manage work stress. Nevertheless, leadership practices related to critical reflection and confession of mistakes have not been fully felt strongly, which can be influenced by the demands of speed and efficiency in startup organizations (Luthans et al., 2015) (Walumbwa et al., 2008). This is relevant to the results of previous studies that show that the effectiveness of *authentic leadership* is greatly influenced by the organizational context and dynamics of the work environment, including time pressure and work culture characteristics (Laguna et al., 2019; Niswaty et al., 2021).

The findings of the study show that *authentic leadership* has a significant positive impact on employee *work engagement* in service-based startup companies in Indonesia. Leadership that emphasizes relational openness, moral consistency, and respect for employee voices has a role in being a work resource that strengthens employees' energy and dedication to their work. When leaders build honest and supportive relationships, employees tend to show higher enthusiasm, feel challenged by their work, and are fully involved in the execution of daily tasks. (Schaufeli & Bakker, 2004) (Wang & Hsieh, 2013)

However, *the work engagement* formed in this study is more reflected in the aspects of energy, dedication, and perseverance than in the aspect of reflective inspiration. In the context of service-based startups that demand speed, flexibility, and multitasking, work engagement serves as an adaptive mechanism that helps employees stay focused and persevere despite high work pressure. This explains why the feeling of being inspired by work has not been fully developed optimally, as the demands of daily operations often limit the space for deep reflection. These findings emphasize that the impact of (Laguna et al., 2019) *authentic leadership* on *work engagement* is greatly influenced by the characteristics of

the work environment and the dynamics of the digital services industry. (Laguna et al., 2019; Schaufeli & Bakker, 2004)

This study provides evidence that *psychological capital* plays an important role as a mechanism that bridges the influence of *authentic leadership* on *work engagement*, because authentic leadership first builds positive psychological conditions for employees before encouraging higher work engagement. Leaders who demonstrate moral consistency, openness, and relational support produce a sense of psychological security that strengthens employee self-efficacy, hope, optimism, and resilience, which are key components of *psychological capital* (Luthans et al., 2015). These psychological conditions allow employees to maintain work energy, focus, and emotional engagement, even in a dynamic and stressful work environment, so that psychological capital is not only useful for mediators, but also has a direct influence on *work engagement* (de Waal & Pienaar, 2013).

Furthermore, these findings are in line with the fact that employees with relatively high Simons & Extraordinary (2013) *levels of psychological capital* show a more stable level of enthusiasm, dedication, and perseverance in their work. *Psychological capital* is useful as a personal resource that helps employees manage work responsibilities and maintain engagement on an ongoing basis, not just in ideal working conditions. The results of this study are also strengthened by research as well, which shows that Mehdad and Shawn (2019) Du Plessis and Boshoff (2018) *psychological capital* plays a big role in strengthening employees' work energy, attention focus, and resilience when facing high workloads and organizational pressures.

The results of the study show that *psychological capital* mediates the correlation between *authentic leadership* and *work engagement*, which means that the impact of authentic leadership on employee work involvement is not only experienced directly, but also through the formation of employees' internal psychological conditions. *Authentic leadership*, which is characterized by moral consistency, relational openness, and respect for employee voices, plays a role in producing a psychologically safe work environment, so that employees feel trusted and supported in carrying out their roles. Such a work environment allows the development of self-efficacy, hope, optimism, and resilience as the main components of (Walumbwa et al., 2010) *psychological capital*, which is an important foundation for *more stable and sustainable* work engagement. (Luthans et al., 2015)

Furthermore, the results of the study show that the mediation that occurs is partial, where *authentic leadership* still gives directly to *work engagement*, but the impact becomes stronger when channeled through *psychological capital*. These findings show that *psychological capital* functions as a psychological mechanism that reinforces and stabilizes the influence of leadership on work engagement, especially in helping employees manage responsibilities as well as work pressures. Employees with a high level of *psychological capital* are relatively able to maintain energy, focus, and dedication to their work despite facing high work dynamics, so that work involvement can be maintained consistently. The role of (Mehdad & Sajadi, 2019) *psychological capital* as a personal resource that bridges the influence of leadership and work attitude is also supported by, which emphasizes that Du Plessis and Boshoff (2018) *psychological capital* helps employees maintain *work engagement* in a dynamic and demanding organizational environment.

The findings of the study show that *work engagement* has a significant positive influence on employee *innovation behavior* in service-based startup companies in Indonesia. These findings indicate that *high work engagement* encourages employees to be more active in generating, developing, and promoting new ideas in the workplace. Employees who are emotionally and cognitively engaged with their work tend to have stable work energy, a sense of belonging to their duties, and a willingness to contribute more than just the demands of formal roles, so that *innovative behavior* is easier to emerge. This situation is relevant to the perception that (Agarwal et al., 2012) *work engagement* is an important prerequisite for the emergence of creativity and innovation at the individual level. (De Jong & Den Hartog, 2010)

Furthermore, the results of the study show that *innovative behavior* that emerges is mainly related to the ability to generate creative ideas and the tendency to support and promote new ideas to colleagues and superiors. These findings show that work engagement encourages employees to not only think creatively, but also play an active role in the social process of innovation through collaboration and team support. This pattern is in line with findings that confirm that Anindita & Rheinhard (2023) *work engagement* strengthens employees' courage in conveying ideas and participating in the process of continuous improvement. However, some employees still show caution when the ideas they generate intersect with the organization's authority structure or strategic policies. This condition causes not all ideas to develop into innovations that can be implemented, especially in the context of service-based *startups* that move quickly and have high operational pressure. These findings indicate that although *work engagement* encourages innovative behaviors, structural support is still needed for creative ideas to be optimally realized. (De Jong & Den Hartog, 2010)

The study's findings show that *work engagement* mediates the correlation between *authentic leadership* and *innovative behavior*, meaning that the influence of authentic leadership on employees' innovative behavior does not occur directly, but through increased work engagement. *Authentic leadership* produces a psychologically safe work environment through moral integrity, open communication, and appreciation for employee contributions, so that employees feel more free to actively engage in their work. (Walumbwa et al., 2010) *This high work engagement* encourages employees to devote energy, attention, and emotional commitment to the tasks they are undertaking, which is an important prerequisite for the emergence of *innovative behavior* (Schaufeli & Bakker, 2004).

Furthermore, the findings of the study show that the mediation that occurs is partial, where *authentic leadership* does not directly encourage *innovative behavior*, but first strengthens employee *work engagement*. Employees who demonstrate a high level of work engagement tend to be more active in generating creative ideas, supporting and promoting new ideas, and participating in the process of continuous improvement in the workplace. This pattern is in line with the (Agarwal et al., 2012) *componential theory of creativity* outlined by, which places intrinsic motivation and work engagement at the core of innovative processes. Research also shows that Amabile & Pratt (2016) Lv et al. (2022) Mahmud & Uysal (2023) *work engagement* strengthens the influence of positive leadership on *innovative behavior*, especially in dynamic work environments that require quick adaptation, such as service-based startups.

CONCLUSION

This study aims to analyze the influence of authentic leadership on psychological capital, work engagement, and employee innovative behavior in service-based startup companies in Indonesia, as well as to examine the mediating role of psychological capital and work engagement in the relationships among these variables. Based on the results of data analysis and hypothesis testing, several key findings can be concluded as follows.

Authentic leadership has been proven to have a significant positive influence on psychological capital. These findings indicate that leadership characterized by moral consistency, relational transparency, and respect for employee voices is able to foster positive psychological states among employees, reflected in increased self-efficacy, hope, optimism, and resilience in facing work demands. Authentic leadership also has a positive and significant influence on work engagement, suggesting that it functions as a key job resource that encourages employees' emotional and cognitive involvement, particularly in sustaining energy, dedication, and persistence in performing work tasks.

Psychological capital has a significant positive influence on work engagement. These results emphasize that employees' internal psychological resources are a key determinant in forming stable and sustainable work engagement, particularly in the dynamic and high-pressure environment of service-based startups. In addition, psychological capital has been shown to partially mediate the relationship between authentic leadership and work engagement, indicating that the influence of authentic leadership on work engagement occurs not only directly but is also strengthened through the development of employees' psychological capital.

Work engagement has a positive and significant influence on innovative behavior. Employees with higher levels of work engagement tend to be more active in generating, developing, and promoting new ideas in the workplace, although not all ideas necessarily proceed to the implementation stage. Work engagement also mediates the relationship between authentic leadership and innovative behavior, indicating that authentic leadership fosters innovative employee behavior primarily through enhanced work engagement, positioning work engagement as a key mechanism linking leadership values to employee innovation.

Overall, the findings of this study demonstrate that authentic leadership plays a strategic role in building psychological capital and enhancing employee work engagement, which in turn stimulates innovative behavior. These results highlight the importance of a leadership approach that is not solely performance-oriented but also focused on strengthening employees' psychological conditions and engagement, particularly in service-based startup organizations characterized by rapid change and high uncertainty.

The results of this study indicate that authentic leadership plays a strategic role in building psychological capital and employee work engagement in service-based startup companies. The managerial implication of these findings is that organizations should prioritize leadership development that emphasizes moral integrity, consistency between values and actions, and openness in interacting with employees. Leaders who actively seek feedback, create spaces for dialogue, and encourage employees to express differing views are proven to foster a psychologically safe work environment. Therefore, management needs to develop leadership practices that are not only oriented toward achieving performance

targets but also toward strengthening interpersonal relationships and ethical role modeling in decision-making, especially within the dynamic and high-pressure startup context.

In addition to leadership, the findings emphasize the importance of psychological capital as a personal resource that sustains employee work engagement. Psychological conditions characterized by optimism about the future, resilience in facing difficulties, and the ability to manage stress effectively have been shown to support more consistent engagement at work. The managerial implication of this finding is the need for organizations to implement human resource development strategies that systematically strengthen employees' psychological capital, such as resilience-building programs, emotional support from supervisors, and a work culture that promotes a positive mindset. This approach is particularly relevant because the work engagement identified in this study is adaptive and persistent, requiring continuous psychological reinforcement to be maintained.

Furthermore, the findings show that work engagement plays an important role in fostering innovative employee behavior, particularly in generating and promoting new ideas. However, not all ideas progress to the implementation stage due to limited structural support and organizational resources. The managerial implication is that service-based startups need to provide clear and accessible mechanisms for channeling employee ideas, such as internal innovation forums, structured idea submission systems, or cross-functional collaboration platforms. Leaders are expected to actively bridge employee ideas with organizational policies and resources so that high work engagement not only produces creative ideas but also translates into innovations that create tangible value for the company.

This study has several limitations that should be considered in interpreting its findings. The research was conducted in service-based startup companies in Indonesia; therefore, the results may not be fully generalizable to organizations in other sectors with different structural characteristics and levels of maturity. In addition, the study employed a cross-sectional design and collected data through an online questionnaire using Google Forms, which limits the ability to capture dynamic changes in psychological conditions and employee behavior over time and may introduce potential self-report bias.

Considering these limitations, future research is recommended to expand the research context to different industry sectors and to develop the model by incorporating additional relevant variables such as job satisfaction, organizational culture, job resources, or other contextual factors. It is also suggested that future studies employ more diverse data collection methods to provide a more comprehensive understanding of the dynamics of psychological capital, work engagement, and employee innovative behavior across various organizational settings.

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