

Effect of Transformational Leadership on Frontline Employee Performance in Hefei Real Estate: The Mediating Role of Employee Engagement

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Received: May 8, 2026 Accepted: July 9, 2026 Published: July 20, 2026

doi:10.5296/bms.v17i2.23739 URL: <https://doi.org/10.5296/bms.v17i2.23739>

Abstract

This study examines how transformational leadership influences employee work performance in a highly volatile, target-driven frontline context and tests career adaptability as a mediating mechanism. Using a cross-sectional survey of 500 frontline employees in Hefei's real estate industry, the study applies covariance-based structural equation modelling in AMOS to assess the measurement and structural models, and uses bootstrapping to evaluate indirect effects. The results show that transformational leadership has a significant positive effect on career adaptability ($\beta = 0.418$, $p < 0.001$) and employee work performance ($\beta = 0.250$, $p < 0.001$), while career adaptability also has a significant positive effect on employee work performance ($\beta = 0.289$, $p < 0.001$). The bootstrap analysis indicates a significant indirect effect of transformational leadership on employee work performance through career adaptability (indirect effect = 0.125, 95% CI [0.078, 0.184]), while the direct effect remains significant, suggesting partial mediation. These findings imply that, under heightened uncertainty, leadership affects performance not only through motivational influence but also by strengthening employees' adaptive resources, including concern, control, curiosity, and confidence. Beyond the Hefei real estate context, the study contributes to leadership and career construction research by showing how a contextual leadership resource can be translated into individual adaptive capacity and, in turn, performance.

Keywords: transformational leadership, career adaptability, employee work performance, frontline employees, real estate industry, China

1. Introduction

In recent years, China's real estate industry has entered a period of deep adjustment and heightened uncertainty. Many frontline roles now confront tougher customer conversion, frequently changing rules, and chronic, sustained pressure. For firms, the challenge is no longer simply to make employees work harder, but to ensure that they can continue producing results and consistently meet targets amid uncertainty. This is why frontline performance has become a particularly salient issue in management discussions within the real estate sector (Rogoff & Yang, 2024).

Hefei is a provincial-capital city in eastern China whose real estate market combines new-town expansion, technology-driven population inflows, and recent adjustment pressure from cautious buyers and slower transaction cycles. For frontline real estate employees, this context means that daily work depends not only on sales effort but also on rapid adaptation to policy signals, customer affordability concerns, digital lead channels, and changing project inventory.

Within this context, leadership style is one of the few internal managerial levers that can be trained and replicated. Transformational leadership emphasises vision-based motivation, role modelling, individualized consideration, and encouragement of learning (Ayandibu, 2024). Its value lies not only in helping employee's complete tasks and achieve performance goals, but also in fostering their willingness to adapt and learn alongside the organization. A substantial body of research suggests a robust association between transformational leadership and improved employee performance, and indicates that this relationship becomes even more critical under faster change and greater pressure (Agag et al., 2025). This raises a practical question: why are some frontline real estate teams able to remain stable amid change, while others become as soon as conditions shift? Beyond short-term incentives, a key factor may be whether employees possess the capability to cope effectively with change.

Career adaptability provides a useful explanation for this pattern. In simple terms, it refers to an employee's resource capacity to respond effectively to change—namely, whether they can quickly adjust their approach, learn new methods, reset goals, and maintain confidence when conditions shift (Asok Kumar et al., 2024). Prior research indicates that career adaptability is closely related to employee work outcomes: individuals with stronger adaptability are more able to sustain effective action under change and pressure, and therefore tend to demonstrate better performance (Chouhan, 2023). In an industry such as real estate, where rules frequently change, and customers have become more cautious, career adaptability may determine whether performance can be maintained over time, rather than rising briefly and then declining.

Building on this logic, this study draws on a sample of frontline employees in Hefei's real estate industry to examine the effect of transformational leadership on employee performance,

with a particular focus on the mediating role of career adaptability. Specifically, the study seeks to identify leadership that enhance employees' capacity to adapt to change and support more sustainable performance outcomes under rising industry uncertainty, beyond relying solely on tighter targets and monetary incentives (Rogoff & Yang, 2024).

2. Literature Review and Conceptual Framework

In recent years, China's real estate market has remained in a phase of adjustment and recovery, with rising uncertainty and intensifying operational pressure becoming a common backdrop for firms (Chu et al., 2025). International and authoritative statistics suggest that real estate companies in China are experiencing a period of slower expansion and greater resilience-testing, which continues to weigh on investment decisions and business expectations (Hoyle & Jain-Chandra, 2024). Under these conditions, frontline performance in the real estate sector depends not only on effort but also increasingly on employees' ability to adapt quickly to practical challenges such as more cautious customers, longer decision cycles, evolving channel strategies, and shifting performance requirements (Krijgsheld et al., 2024; Savills Research, 2024; Zhang, 2025). In other words, frontline performance is becoming more reliant on employees' adjustment capacity in the face of ongoing change.

From the perspective of controllable organizational factors, leadership style has repeatedly been shown to be an important antecedent of employee behaviour and performance (Bonini et al., 2024; Wang et al., 2023). Among various approaches, transformational leadership is fundamentally oriented toward enabling change and fostering follower development (Jun & Lee, 2023; Tagscherer & Carbon, 2025). Recent review studies commonly draw on the full-range leadership model to define the core behaviours of transformational leadership, including role modelling and idealized influence, articulating an inspiring vision and providing motivational encouragement, stimulating followers to solve problems through new ways of thinking (intellectual stimulation), and offering individualised consideration and support (Bakker et al., 2023; Mekonnen & Bayissa, 2023; Notarnicola et al., 2024). By emphasizing vision-based motivation, individualised consideration, and intellectual stimulation, transformational leadership tends to enhance employees' intrinsic motivation, willingness to learn, and proactive initiative, and it is associated with positive outcomes such as higher task performance and innovative behavior (Bakker et al., 2023). Moreover, recent cross-cultural evidence indicates that transformational leadership exerts a stable, positive effect on outcomes such as task performance (Agag et al., 2025).

Furthermore, in recent years, career adaptability has increasingly been regarded as a key mechanism for explaining differences in performance. It refers to employees' readiness and coping resources in changing contexts, including concern for the future, a sense of control over change, a tendency to explore new methods, and confidence (Khampirat, 2024). Recent systematic reviews further clarify that career adaptability is typically composed of four core resources, commonly referred to as the 4Cs: concern, control, curiosity, and confidence (Gaile et al., 2024; Khampirat, 2024; Spurk et al., 2025). Both systematic reviews and empirical studies indicate a positive association between career adaptability and outcomes

such as work adjustment and job performance. Specifically, higher career adaptability enables employees to maintain better performance under uncertainty (Asok Kumar et al., 2024).

Employee work performance is commonly understood as the behaviours and outcomes employees demonstrate at work that create value for the organisation (Platania et al., 2023). Recent research on performance measurement generally suggests that work performance is not a single construct; at minimum, it encompasses three broad dimensions: task performance, contextual performance, and counterproductive work behaviour (Jianmin, 2024; Platania et al., 2023). Accordingly, placing transformational leadership as a key organisational-level input, career adaptability as an individual-level mechanism resource, and employee work performance as the ultimate outcome within the same analytical framework allows this study to better address a central question in frontline real estate management: how do the support and motivation provided by leaders translate into employees' capacity to cope with change, and ultimately manifest in performance outcomes (Chang & Tseng, 2024).

Grounded in career construction theory, career adaptability is conceptualised as a set of key psychosocial resources that individuals draw upon to cope with vocational tasks and transitions. These resources enable self-regulation and effective action under uncertainty and, in turn, shape work-related outcomes (Savickas, 2013). In the frontline real estate context, where change is frequent and pressure is persistent, whether employees possess stronger career adaptability often determines whether they can adjust work strategies in a timely manner and maintain stable performance. Prior evidence likewise indicates a significant positive association between career adaptability and favourable work outcomes such as employee performance (Chouhan, 2023). Moreover, career construction theory emphasises that career adaptability resources are influenced by external contextual factors. When leaders engage in transformational leadership behaviours, employees are more likely to develop stronger career adaptability resources, thereby converting leadership support and motivation into employees' capability to cope with change and ultimately into better performance (Ma et al., 2024). Accordingly, this study proposes a theoretical model in which transformational leadership enhances employee work performance through the mechanism of career adaptability (see Fig. 1).

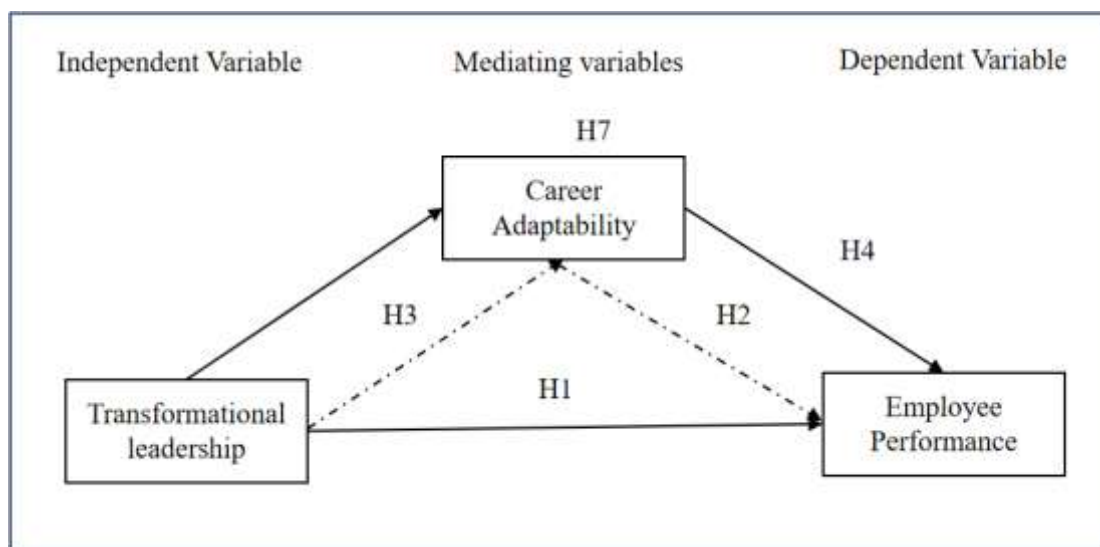


Figure .1 Theoretical Model

2.1 Transformational Leadership (TFL) and Employee Performance (EP)

Across sales-oriented teams characterised by strong target pressure and pronounced outcome volatility, prior research has consistently reported a positive association between transformational leadership and employee work performance. Among frontline employees in the real estate sector, the positive relationship between transformational leadership and task performance has been directly tested and supported. This suggests that when teams must meet demanding targets on a continual basis, leaders who articulate an inspiring vision, encourage improvement, and provide support are more likely to elicit stronger performance outcomes (Khath & Tan, 2024). Similarly, studies of frontline salespeople indicate that transformational leadership can enhance sales performance, often alongside factors such as self-efficacy and creative problem solving. These characteristics closely resemble the work realities of frontline real estate employees, who face more cautious customers, slower transactions, and a constant need to adjust their methods (Van et al., 2024).

In frontline real estate sales roles, transformational leadership is more likely to translate into better performance for three straightforward reasons. First, transformational leaders help employees understand the meaning and direction of their work and strengthen their sense of control, which encourages proactive goal pursuit and greater effort in finding effective ways to achieve targets (Kim & Yoon, 2025). Second, transformational leadership emphasises support and empowerment, which can enhance salespeople's self-efficacy and confidence. As a result, they are more likely to persist and follow up with customers despite rejection and market fluctuations, thereby improving work effectiveness (Van et al., 2024). Third, by encouraging reflection and continuous improvement through intellectual stimulation and individualised consideration, transformational leadership motivates employees to leverage their strengths and engage in proactive behaviours, which in turn predict stronger job performance (Bakker et al., 2023). In addition, evidence based on real estate practitioner samples has directly shown a significant positive relationship between transformational

leadership and individual work performance among real estate agents (Lee et al., 2023). Accordingly, this study proposes the following hypothesis:

H1: Transformational leadership (TFL) is positively and significantly associated with employee performance (EP).

2.2 Career Adaptability (CA), TFL and EP

In frontline real estate roles, employees frequently operate under uncertain conditions, including policy and market fluctuations, cautious and price-sensitive customers, rapid updates to online lead-generation tools, and changes to commission rules. Management approaches that rely primarily on rules, targets, and reward–punishment mechanisms tend to drive short-term compliance and behavioral input (Agyabeng, 2025). However, under high uncertainty, sustained performance increasingly depends on employees' self-regulation and adaptive resources (Chen et al., 2024a). Career adaptability (CA) offers a useful lens for explaining how employees maintain and improve performance amid change. Drawing on career construction theory, CA is viewed as a set of self-regulatory resources developed to cope with career tasks, career transitions, and work-related shocks, typically comprising four core dimensions: concern, control, curiosity, and confidence (Gaile et al., 2024; Khampirat, 2024; Spurk et al., 2025).

2.2.1 Career Adaptability and Employee Engagement

From an outcome perspective, recent empirical evidence generally shows that career adaptability (CA) is positively associated with work performance and task performance. Employees with higher CA are more inclined to learn new methods proactively, adjust strategies, regulate emotions and stress, and translate uncertainty into actionable steps, which makes them more likely to achieve stronger work outputs (Chen et al., 2024b; Meng & Briscioli, 2024a).

For instance, Chouhan (2023) found in an organizational context that CA can positively influence employee performance by strengthening organizational commitment. In addition, a time-lagged study using a Chinese sample observed a significant effect of CA on work performance, which was particularly pronounced among employees with shorter tenure. This suggests that in highly dynamic environments, adaptability itself constitutes a performance advantage (Meng & Briscioli, 2024b). Evidence from systematic reviews further supports a stable positive link between CA and favorable outcomes such as work adjustment and job performance (Asok Kumar et al., 2024). Accordingly, this study argues that, in the context of frontline real estate work in Hefei, CA will positively predict employee work performance (EP). Therefore, the following hypothesis is proposed:

H2: Career adaptability (CA) has a significant positive effect on employee performance (EP).

2.2.2 Transformational Leadership and Career Adaptability

From a career construction theory (CCT) perspective, career adaptability (CA) is a resource

that can be activated and developed. Support from direct leaders in the organisational context shapes whether employees are willing to invest in learning, feel confident to try new approaches, and can transform pressure into growth (Hu et al., 2025). Transformational leadership emphasises inspirational vision, individualised consideration, and intellectual stimulation. These behaviours are more likely to make employees feel supported and capable of developing, thereby enhancing their future orientation and planning, sense of control over action, willingness to explore new methods, and confidence in coping with difficulties (Chang & Tseng, 2024). Related studies also suggest that different forms of positive leadership can significantly foster employees' career resources and adaptive capacity, providing practical evidence for leadership pathways that strengthen career adaptability (Ge et al., 2024). In addition, earlier research has directly shown that transformational leadership can enhance employees' CA and subsequently promote more favourable work behaviours, offering direct empirical support for the proposed positive effect of TFL on CA (Lan & Chen, 2020). Therefore, in high-pressure and highly uncertain frontline real estate settings, TFL is more likely to raise employees' CA by providing direction, offering support, and encouraging continuous learning. Accordingly, the following hypothesis is proposed:

H3: Transformational leadership (TFL) has a significant positive effect on career adaptability (CA).

2.2.3 The Mediating Role of Career Adaptability

From a managerial logic perspective, the effect of transformational leadership (TFL) on performance should not be interpreted merely as a leader “boosting morale” and performance rising accordingly. A more plausible explanation is that TFL first reshapes employees' psychological and behavioural readiness to deal with change, enabling them to continue learning, adjusting, and persisting despite shifting customer demands, tool iterations, and target pressure (Alwahhabi et al., 2023; Jun & Lee, 2023; Yu & Xiang, 2024). This logic aligns with career construction theory's mechanism in which adaptive resources mediate the link between contextual resources and adaptive outcomes (Hu et al., 2025). Building on the evidence discussed above—namely, the positive association between career adaptability (CA) and performance, as well as the facilitating role of leadership in developing CA—this study further proposes that CA serves as a mediating mechanism between TFL and employee work performance (EP). In other words, TFL indirectly enhances EP by strengthening employees' CA. Accordingly, the following hypothesis is proposed:

H4: Career adaptability (CA) mediates the relationship between transformational leadership (TFL) and employee performance (EP).

3. Methodology

3.1 Research Design, Sample and Data Collection

This study adopts a quantitative research design and uses a cross-sectional questionnaire survey to examine the relationships among transformational leadership (TFL), career

adaptability (CA), and employee work performance (EP), drawing on a sample of frontline employees from the real estate industry in Hefei. Frontline real estate roles were selected as the sampling context because they involve clear performance targets, high performance pressure, and frequent shifts in market and customer conditions. These characteristics make the setting particularly suitable for investigating how leadership behaviours shape employees' work performance and adaptive capacity in dynamic environments.

Data were collected using a combination of online and offline approaches. For the online component, the questionnaire was distributed through a survey platform. For the offline component, questionnaires were administered and collected on-site at participating firms or branch stores by the researcher or trained assistants. To ensure contextual consistency, the inclusion criteria required respondents to hold frontline positions in the real estate industry and to have actual work experience in the role. The survey was completed anonymously, and participants were informed that the data would be used solely for academic purposes and that there were no right or wrong answers. These procedures were intended to reduce social desirability concerns and encourage honest responses. All items were measured on a 10-point Likert-type scale to enhance response discrimination.

For data screening, the returned questionnaires were checked for response quality. Obviously invalid or careless responses were removed, such as those showing extensive straight-lining, patterned responding, or missing values on key items. After data cleaning, 500 valid questionnaires were retained for subsequent analyses. The sample's basic demographic characteristics (e.g., gender, age, education level, job type, and tenure) will be summarized in the descriptive statistics section to present the sample profile and provide contextual background for interpreting the results.

To ensure that the item wording was appropriate for the industry context, this study conducted a pilot test and a content validity check prior to the formal survey. The pilot test included 95 respondents, and two domain experts were invited to review the items in terms of wording, content coverage, and clarity. Based on the pilot feedback and expert suggestions, several items were refined and, where necessary, removed to improve comprehensibility and strengthen alignment with frontline real estate work practices. The formal data collection was then carried out, resulting in the final sample used for model testing in this study.

3.2 Measures

This study collected data using a structured questionnaire. All items were rated on a 10-point scale (1 = strongly disagree, 10 = strongly agree) to enhance response discrimination and reduce clustering around the midpoint. To ensure suitability for China's frontline real estate context, established scales were contextually adapted through wording refinements without altering the core meaning of the items, and the phrasing was further improved based on the pilot test and expert review. The measurement sources and item specifications for each construct are described below.

3.2.1 Transformational Leadership (TFL)

Transformational leadership (TFL) was measured with reference to the relevant dimensions of the established MLQ-5X scale, with minor wording adjustments to fit the frontline real estate management context. In the formal survey, 12 TL items were retained, capturing the core facets of transformational leadership, including idealized influence, inspirational motivation, intellectual stimulation, and individualised consideration. Respondents evaluated the leadership behaviours of their direct supervisors, with higher scores indicating a higher perceived level of transformational leadership.

3.2.2 Career Adaptability (CA)

Career adaptability (CA) was measured using the CAAS-12 scale. This instrument conceptualises career adaptability as a set of adaptive resources reflected in four dimensions—concern, control, curiosity, and confidence—relevant to coping with career change and uncertainty. Respondents provided self-ratings based on their own states and behavioural tendencies in work-related change situations, with higher scores indicating stronger career adaptability.

3.2.3 Employee Performance(EP)

Employee work performance (EP) was measured with reference to individual work performance instruments such as the IWPQ-short, with wording moderately adapted to reflect the characteristics of frontline real estate roles. In the formal survey, nine EP items were retained to capture respondents' overall performance in completing core job tasks and maintaining work quality and efficiency. Higher scores indicate higher self-rated work performance.

In addition, the questionnaire collected basic demographic information (e.g., gender, age, education level, job type, and tenure). These variables were used to describe the sample and, where appropriate, were included as control variables in the model tests to reduce potential confounding effects of demographic factors on the focal relationships (see Table 1).

Table 1. Structure of Questionnaire

Section	Measure	Dimension	Items	Scale	Source (adapted)*
1	Demographic Questions	N/A	8	N/A	Self-Developed
2	Leadership Behaviours	Transformational Leadership	12		(Bass, 1985) *
3	Career Adaptability	Concern	4	10-Point Likert Scale	(Yu et al., 2020)
		Curiosity	4		
		Control	4		
		Confidence	4		
5	Employee Performance	Task Performance	3		(Koopmans et al., 2012) *
		Contextual Performance	3		
		Counterproductive Behaviours	3		
		Total	57		

Note. TFL = transformational leadership; CA = career adaptability; EP = employee work performance.

3.3 Data Analysis

Data analyses followed procedures commonly used in journal articles and included descriptive and correlational analyses, structural equation modelling (SEM), and bootstrap tests of mediation effects. First, SPSS was used to summarize respondents' demographic characteristics and to compute the means, standard deviations, and correlation coefficients for the core variables (TFL, CA, and EP), providing an overview of the data distribution and preliminary associations among variables.

Next, covariance-based structural equation modelling (CB-SEM) was conducted using AMOS. CB-SEM is appropriate for theory-driven research because it allows the measurement model (CFA) and the structural model (path relationships) to be evaluated within a single integrated framework, making it well suited for testing the theoretical model and hypotheses proposed in this study (Hair et al., 2025). In terms of analytical procedures, a CFA was first performed to assess overall measurement model fit. Commonly reported fit indices—such as χ^2/df , CFI, TLI, RMSEA, and SRMR—were used as evidence of model acceptability (Sathyanarayana & Mohanasundaram, 2024). Measurement quality was then evaluated using reliability and validity evidence, including convergent and discriminant validity assessed on the basis of CFA results (e.g., CR and AVE), to ensure that the scales reliably and validly capture the latent constructs (Cheung et al., 2024). After establishing an acceptable measurement model, the structural model was tested by estimating and reporting standardized path coefficients and their significance levels. The analyses focused on the paths from TFL to CA, from CA to EP, and from TFL to EP, thereby providing the basis for hypothesis testing.

Third, to test the mediating role of career adaptability in the relationship between transformational leadership and employee work performance, this study employed a bootstrap procedure to estimate confidence intervals for the indirect effect. This approach constructs an empirical sampling distribution of the indirect effect through repeated resampling and uses whether the confidence interval includes zero as the key criterion for mediation significance. Specifically, an indirect effect is considered significant when the 95% bootstrap confidence interval does not include zero (Hair et al., 2025).

Finally, given that the data were collected using a single self-report questionnaire, this study also considered the potential influence of common method bias (CMB). Procedurally, anonymity was ensured and participants were informed that the survey was for academic purposes only and that there were no right or wrong answers, which helps reduce social desirability concerns and consistency motives. Statistically, Harman's single-factor test and a single-factor CFA comparison can be used as supplementary checks, and their limitations should be clearly acknowledged in the manuscript (Van et al., 2024).

4. Data analysis and Findings

4.1 Preliminary Analyses

This section first describes the sample characteristics and the overall distribution of the data. It then reports the descriptive statistics and correlation results for the main variables (TFL, CA, and EP). Finally, a preliminary assessment of common method bias (CMB) is conducted to ensure that subsequent structural model analyses are based on reliable data.

4.1.1 sample Characteristics and Data Overview

A total of 500 valid responses were retained for analysis. The data were collected through a combination of online and offline survey administration. Respondents were frontline employees in Hefei's real estate industry and represented diverse demographic characteristics in terms of gender, age, education level, and tenure. Overall, the sample profile is consistent with the general composition of frontline real estate positions, providing an appropriate basis for empirically examining the relationships among perceived leadership, career adaptability, and employee work performance. All items were measured on a 10-point scale. Data screening did not reveal any apparent distributional anomalies, and invalid questionnaires had already been removed at the collection stage according to the predefined criteria.

4.1.2 Descriptive Statistics and Correlation Analysis

Table 3 reports the means, standard deviations, and correlation coefficients for TFL, CA, and EP. The directions of the correlations are consistent with the theoretical expectations: TFL is positively related to EP, TFL is positively related to CA, and CA is positively related to EP. These results provide preliminary support for the subsequent hypothesis tests and suggest that, in the high-pressure and high-uncertainty context of frontline real estate work, leadership support and motivation, employees' adaptive resources, and performance outcomes may be closely interconnected. To avoid overinterpretation, the study further examines the proposed relationships in the structural model by accounting for measurement error and testing path coefficients and mediation effects.

Table 3. Descriptive Statistics of the Main Variables

Main Variables (N=500)	Mean	Median	Standard Deviation	Variance	Minimum	Maximum
Transformational Leadership	6.035	5.917	1.983	3.931	1.420	9.750
Transactional Leadership	6.223	6.286	1.892	3.580	1.860	9.860
Career Adaptability	6.017	5.833	1.810	3.276	1.580	9.670
Employee Job Performance	6.018	6.000	2.017	4.068	2.110	9.890

4.1.3 Preliminary Assessment of Common Method Bias (CMB)

Because this study relies on self-reported questionnaire data collected at a single time point, common method bias (CMB) is a potential concern. Recent organisational and behavioural

research suggests that CMB can arise from multiple sources, and no single statistical test can conclusively demonstrate its absence. A more appropriate approach is to jointly report procedural remedies and statistical diagnostics (Podsakoff et al., 2024). Accordingly, at the procedural level, anonymity was ensured and respondents were informed that there were no right or wrong answers and that the survey was used solely for academic purposes. These steps were intended to reduce social desirability concerns and consistency motives. At the statistical level, Harman's single-factor test was conducted (Table 4).

It should be noted that recent studies have questioned the sensitivity of Harman's single-factor test in distinguishing substantive design issues from method-related variance and in detecting CMB. Therefore, this study does not treat the test as definitive evidence, but rather as a preliminary check for whether a single method factor appears to dominate the variance (Howard et al., 2024). Taken together, the procedural controls and the statistical results suggest that CMB is unlikely to have a decisive impact on the core conclusions, providing a reasonable basis for subsequent structural model estimation and mediation testing.

Table 4. Total Variance Explained

Component	Total	Initial eigenvalue variance percentage	Cumulative%
1	15.119	30.854	30.854
2	4.905	10.011	40.865
3	4.748	9.689	50.554
4	3.707	7.565	58.119
5	3.134	6.396	64.515
6	0.96	1.959	66.474
7	0.924	1.886	68.36
8	0.888	1.812	70.172
9	0.742	1.515	71.687
10	0.715	1.459	73.145

4.2 Measurement Quality

To ensure the robustness of subsequent structural model estimation and mediation testing, this study first assesses the measurement properties of the scales, including reliability, convergent validity, discriminant validity, and overall measurement model fit. Recent SEM research recommends that measurement quality should not be evaluated using a single indicator; instead, it should be assessed holistically by considering composite reliability (CR), average variance extracted (AVE), evidence of discriminant validity, and model fit indices (Cheung et al., 2024).

4.2.1 Reliability

As shown in Table 4.4, the three core constructs demonstrated high internal consistency. Cronbach's α values were 0.958 for TFL, 0.933 for CA, and 0.943 for EP. Composite reliability (CR) values were 0.958 for TFL, 0.943 for CA, and 0.965 for EP. Overall, these results indicate good internal consistency and suggest that the scales are reliable and stable.

4.2.2 Convergent Validity

Convergent validity was assessed based on standardized factor loadings, average variance extracted (AVE), and composite reliability (CR). Recent reporting guidelines commonly recommend that AVE should be at least 0.50 and CR should be at least 0.70 to indicate acceptable convergent validity (Cheung et al., 2024). As shown in Table 5, item loadings for each construct are relatively high and consistent, AVE values exceed 0.50, and CR values are above 0.70. Overall, these results suggest satisfactory convergent validity.

Table 5. Convergent Validity Analysis Results for Latent Variables

Latent variable	Factor loading range	AVE	CR
TFL	0.781-0.832	0.654	0.958
CA	0.778-0.832	0.806	0.943
EP	0.789-0.885	0.901	0.965

Note. TFL = transformational leadership; CA = career adaptability; EP = employee work performance.

4.2.3 Discriminant Validity

Discriminant validity assesses whether each construct captures a concept that is empirically distinct from the others. This study applied the Fornell–Larcker criterion, which requires that the square root of each construct’s AVE exceed its correlations with other constructs. The square roots of AVE for EP, CA, and TFL are 0.982, 0.971, and 0.979, respectively. Each of these values is greater than the corresponding inter-construct correlations (EP–CA = 0.394, EP–TFL = 0.371, and CA–TFL = 0.418), indicating satisfactory discriminant validity among the constructs.

4.2.4 CFA Model Fit

Confirmatory factor analysis (CFA) of the measurement model was conducted using AMOS. The analysis yielded the following fit indices: $\chi^2/df = 1.437$, CFI = 0.972, TLI = 0.970, RMSEA = 0.030, and SRMR = 0.036. Overall, these values fall within commonly accepted ranges and indicate a good fit of the measurement model. It is important to note that recent methodological work recommends evaluating model fit holistically using multiple indices, rather than making mechanical judgments based on a single cutoff; this study follows that approach in reporting and interpretation (Goretzko et al., 2024).

Taken together, the measures of TFL, CA, and EP demonstrate satisfactory reliability, convergent validity, discriminant validity, and overall model fit, providing an adequate measurement foundation for subsequent tests of the structural paths and mediation effects.

4.3 Hypotheses Testing

After establishing satisfactory reliability and validity for the measurement model, the structural model was further estimated in AMOS to test the hypothesized relationships among

TFL, CA, and EP. SEM studies typically recommend reporting the fit of the measurement model and the structural model separately, and evaluating model adequacy based on a combination of fit indices rather than relying on a single statistic (Kline, 2024).

4.3.1 Structural Model Fit

The key fit indices of the structural model indicate an overall good fit: CMIN/DF = 1.512, GFI = 0.918, CFI = 0.980, and RMSEA = 0.032 (Figure 2). These values suggest that the proposed structural paths adequately represent the characteristics of the sample data, providing a sound basis for interpreting the path coefficients and testing the hypotheses.

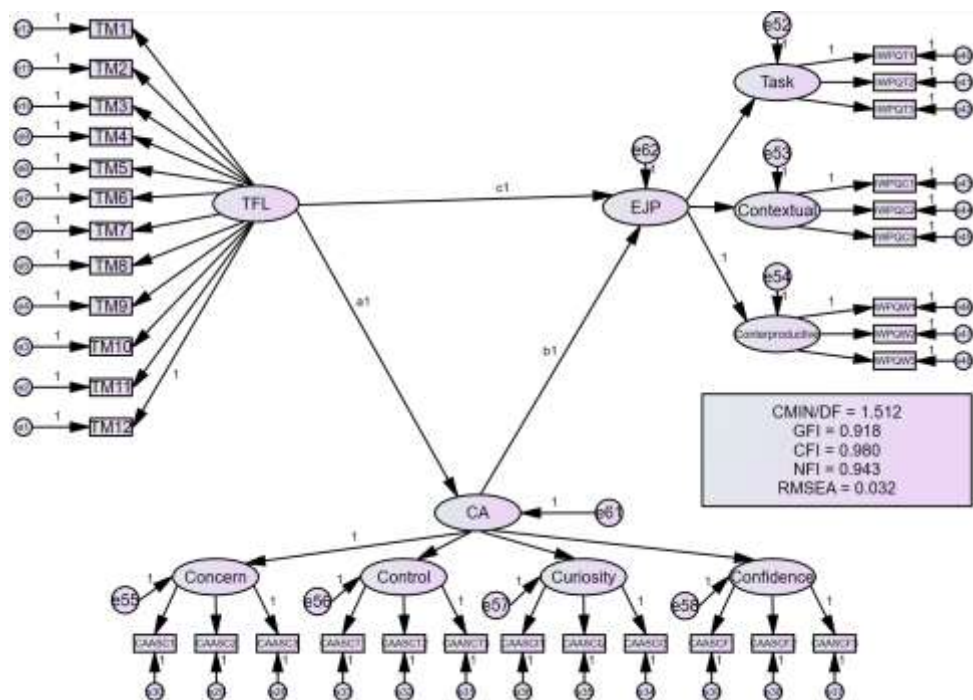


Figure 2. Structural Model

Note. TFL = transformational leadership; CA = career adaptability; EJP = employee work performance.

4.3.2 Direct Path Coefficients and Hypothesis Testing Results

All three core paths are statistically significant, and their directions are consistent with the theoretical expectations. Transformational leadership has a significant positive effect on career adaptability ($\beta = 0.418$, $p < 0.001$). Career adaptability, in turn, has a significant positive effect on employee work performance ($\beta = 0.289$, $p < 0.001$). In addition, transformational leadership shows a significant direct effect on employee work performance ($\beta = 0.250$, $p < 0.001$). Therefore, H1, H2, and H3 are supported. Overall, these findings indicate that in the sample of frontline real estate employees in Hefei, transformational leadership not only directly promotes employee performance but is also strongly associated with employees' career adaptability, providing a solid basis for subsequent mediation testing.

4.3.3 Indirect Effects and Mediation Test Results

Building on the tests of the direct paths, this study further employed a bootstrap procedure to examine the mediating effect of career adaptability (CA) in the relationship between transformational leadership (TFL) and employee work performance (EP). The results show that the estimated indirect effect is 0.125, with a 95% confidence interval of [0.078, 0.184]. Because the interval does not include zero, the indirect effect is significant. Meanwhile, the total effect is 0.384, with a 95% confidence interval of [0.290, 0.479], indicating that the overall effect of TFL on EP is significant. Given that the direct effect of TFL on EP remains significant in the structural model, CA can be interpreted as a partial mediator between TFL and EP. This suggests that transformational leadership not only directly enhances employee performance but also indirectly improves performance by strengthening employees' career adaptability.

Overall, the structural model results indicate that transformational leadership has significant positive effects on both career adaptability and employee work performance, and career adaptability also significantly enhances employee work performance. All three direct paths are supported. The bootstrap results further show a significant indirect effect of transformational leadership on employee work performance through career adaptability, and the total effect of transformational leadership on employee work performance is also significant. Because the direct effect remains significant, career adaptability functions as a partial mediator between transformational leadership and employee work performance. This suggests that leaders can improve performance both directly and indirectly by strengthening employees' capability to cope with change.

5. Discussion and Conclusion

This study focuses on frontline real estate roles in Hefei, a work context characterized by high volatility, target pressure, and intense competition, to examine how transformational leadership influences employees' ability to deliver stable performance. Overall, the findings are consistent with recent cross-cultural evidence that transformational leadership tends to enhance work performance, often by providing vision, support, and motivation that strengthen employees' task-related outcomes (Agag et al., 2025).

From a mechanism-based perspective, career construction theory (CCT) conceptualizes career adaptability as a set of key psychosocial resources for coping with career tasks, transitions, and work-related shocks. These resources can be activated and developed when individuals receive support from their external context (Wang & Li, 2024). In frontline real estate work, ongoing policy and market shifts, cautious customers, and longer transaction cycles continuously generate uncertainty. Whether employees can adjust their strategies in a timely manner while maintaining confidence and a willingness to learn often determines whether they can sustain performance over time. Prior research also indicates a stable link between career adaptability and positive states in uncertain work environments, and this relationship can vary depending on contextual factors such as job insecurity (Chen et al.,

2024). Accordingly, by connecting leadership behaviours with employees' adaptive resources, this study helps explain why, during periods of volatility, leadership support and motivation are more likely to translate into performance outcomes through the enhancement of employee adaptability resources.

From a managerial practice perspective, this implies that managers should look beyond outcome metrics and place greater emphasis on developing employees' adaptability through day-to-day training and coaching. For example, providing clear short-term priorities and timely feedback, organizing regular debriefs and encouraging experimentation, and using realistic scenarios to rehearse objection handling and strategy adjustment can help employees maintain the quality of their actions amid change. Overall, this study underscores that, in the face of elevated uncertainty in the real estate sector, the impact of transformational leadership on frontline performance stems not only from "motivation" but is also closely tied to whether employees can build and effectively utilize career adaptability resources.

6. Contribution, Limitations and Future Research

It is important to emphasize that this study identifies only a partial mechanism. In other words, career adaptability explains part of the relationship, but transformational leadership does not influence performance solely through this single pathway. Recent empirical research suggests that transformational leadership may also enhance performance through more immediate psychological processes, such as psychological empowerment and work engagement, which provides a reasonable explanation for the presence of partial mediation. In practice, leaders may help employees become more capable of coping with change while also directly strengthening their momentary engagement and execution quality (Huang et al., 2025).

In terms of contributions and implications, the value of this study is primarily empirical and context-specific rather than aimed at developing a new theory. Using a frontline real estate sample in China, the findings provide evidence for a practical managerial insight: under volatile conditions, strengthening employees' career adaptability is one actionable lever through which leadership can influence performance. Accordingly, managers should shift part of their day-to-day focus from monitoring targets to developing team adaptability.

Practically, this can be implemented in several ways. First, managers should provide clear direction and timely feedback on an ongoing basis to reduce uncertainty and trial-and-error searching among frontline employees. Second, managers can build employees' confidence by organizing regular debriefs and modelling effective practices while encouraging safe experimentation. Third, coaching should incorporate scenario-based simulations that reflect real challenges, such as customer objections, picky housing requirements, and policy changes. The goal is to train flexible adaptation rather than rote memorization of sales scripts. These practices are consistent with evidence that leadership support plays a critical role in enhancing the performance of real estate employees (Chang & Tseng, 2024).

This study also has several limitations. First, the cross-sectional design limits causal inference,

and the findings should therefore be interpreted with caution. Second, although procedural and statistical remedies were applied, the use of a self-report survey may still introduce common method bias. Third, because the sample was drawn from a single city and a single industry context, additional evidence is needed before generalising the results to other regions or occupational settings. Future research could adopt longitudinal designs and incorporate multi-source performance measures. It could also conduct cross-city comparisons or examine different frontline job segments to further assess whether the proposed mechanism remains robust across market cycles and varying levels of environmental uncertainty.

Acknowledgments

We would like to express our heartfelt gratitude to the real estate professionals who took part in this study. The valuable data you supplied have made a significant contribution to this research.

Author contributions

Sheng Hou was responsible for study design, data collection, and drafting the manuscript. Associate Professor Hamrila Abdul Latif provided guidance throughout the research process and assisted with revisions. All authors read and approved the final manuscript.

Funding

Not applicable.

Competing interests

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Informed consent

Obtained.

Ethics approval

The Publication Ethics Committee of the Macrothink Institute.

The journal's policies adhere to the Core Practices established by the Committee on Publication Ethics (COPE).

Provenance and peer review

Not commissioned; externally double-blind peer reviewed.

Data availability statement

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

Data sharing statement

No additional data are available.

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