



Transformational Leadership and Organizational Citizenship Behavior in Supply Chain Organizations: The Strategic Roles of Job Satisfaction and Organizational Commitment

Masduki Asbari¹, Dewiana Novitasari²

^{1,2}Universitas Insan Pembangunan Indonesia, Indonesia

Corresponding email: kangmasduki.ssi@gmail.com

Abstract

Transformational leadership is critical for fostering organizational citizenship behavior (OCB) in supply chain organizations, yet the psychological mechanisms through which this relationship operates remain insufficiently understood. This quantitative study examines the strategic mediating roles of job satisfaction and organizational commitment in the relationship between transformational leadership and OCB in supply chain organizations, utilizing Partial Least Squares Structural Equation Modeling (PLS-SEM) with SmartPLS 4. Drawing on social exchange theory, transformational leadership theory, and organizational support theory, a mediation model was tested using data from 240 employees in supply chain organizations across Banten Province, Indonesia. Results from SmartPLS 4 analysis confirmed that transformational leadership directly enhances OCB, while both job satisfaction and organizational commitment partially mediate this relationship. Notably, the combined mediation pathway through job satisfaction and organizational commitment was significant. Convergent validity ($AVE > 0.70$) and discriminant validity ($HTMT < 0.85$) thresholds were satisfied, with R^2 values demonstrating substantial predictive relevance. The structural model revealed significant direct effects ($\beta = 0.38, p < 0.001$) and substantial mediation effects, with total indirect effects explaining 42% of OCB variance. This research advances organizational behavior theory by integrating psychological mechanisms through which transformational leadership influences OCB in supply chain contexts, offering explicit novelty through: (1) mediation analysis using SmartPLS 4; (2) simultaneous integration of job satisfaction and organizational commitment; (3) empirical focus on supply chain organizational settings; and (4) emerging economy perspective. Practically, supply chain managers should prioritize transformational leadership development to cultivate employee commitment and satisfaction, thereby enhancing discretionary behavioral contributions essential for operational excellence and competitive advantage. This research establishes actionable frameworks for supply chain organizations seeking to optimize employee psychological attachment and extra-role performance.

Keywords: Job satisfaction, organizational citizenship behavior, organizational commitment, SmartPLS 4, supply chain management, transformational leadership

Abstrak

Kepemimpinan transformasional memegang peranan penting dalam mendorong terbentuknya organizational citizenship behavior (OCB) pada organisasi rantai pasok. Namun demikian, mekanisme psikologis yang mendasari hubungan tersebut masih belum banyak dikaji secara mendalam. Penelitian ini bertujuan untuk menganalisis peran mediasi kepuasan kerja dan komitmen organisasi dalam hubungan antara kepemimpinan transformasional dan OCB dengan menggunakan pendekatan penelitian kuantitatif. Data dikumpulkan dari 240 karyawan yang bekerja pada berbagai organisasi rantai pasok di Provinsi Banten, Indonesia, dan dianalisis menggunakan Partial Least Squares Structural Equation Modeling (PLS-SEM) melalui perangkat lunak SmartPLS 4. Penelitian ini berlandaskan pada Social Exchange Theory, Transformational Leadership Theory, dan Organizational Support Theory dalam menguji model mediasi yang diusulkan. Hasil penelitian menunjukkan bahwa

kepemimpinan transformasional berpengaruh positif dan signifikan secara langsung terhadap OCB. Selain itu, kepuasan kerja dan komitmen organisasi masing-masing terbukti memediasi secara parsial hubungan tersebut, sementara efek mediasi berantai melalui kepuasan kerja dan komitmen organisasi juga menunjukkan signifikansi statistik. Model pengukuran memenuhi kriteria validitas konvergen ($AVE > 0,70$) dan validitas diskriminan ($HTMT < 0,85$), sedangkan model struktural menunjukkan kemampuan prediktif yang kuat dengan nilai R^2 yang mencerminkan daya jelas model yang substansial. Pengaruh langsung kepemimpinan transformasional terhadap OCB terbukti signifikan ($\beta = 0,38$; $p < 0,001$), sedangkan total pengaruh tidak langsung menjelaskan sekitar 42% variasi OCB. Penelitian ini memberikan kontribusi terhadap pengembangan teori perilaku organisasi dengan menjelaskan secara komprehensif mekanisme psikologis yang menjembatani pengaruh kepemimpinan transformasional terhadap OCB pada organisasi rantai pasok. Kontribusi utama penelitian ini meliputi: (1) penerapan analisis mediasi menggunakan SmartPLS 4; (2) pengujian simultan kepuasan kerja dan komitmen organisasi sebagai variabel mediasi; (3) penyediaan bukti empiris pada konteks organisasi rantai pasok; serta (4) penyajian perspektif dari negara berkembang. Secara praktis, hasil penelitian ini mengindikasikan bahwa manajer perlu memperkuat praktik kepemimpinan transformasional guna meningkatkan kepuasan kerja dan komitmen organisasi karyawan sehingga mampu mendorong perilaku ekstra-peran yang mendukung keunggulan operasional dan keunggulan kompetitif yang berkelanjutan.

Kata kunci: kepemimpinan transformasional; kepuasan kerja; komitmen organisasi; organizational citizenship behavior; manajemen rantai pasok; SmartPLS 4.



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INTRODUCTION

1.1 Research Background

Supply chain organizations operate within increasingly complex, resource-constrained environments demanding superior coordination, adaptability, and employee discretionary effort (Purwanto et al., 2021). The contemporary supply chain landscape requires employees to engage in activities extending beyond prescribed job roles—organizational citizenship behaviors (OCB)—including helping colleagues, organizational loyalty, and commitment to efficiency (Y. Hermanto et al., 2024). Traditional organizational structures relying solely on formal compensation systems prove inadequate for eliciting sustained OCB; instead, psychological attachment mechanisms emerge as critical predictors of voluntary pro-organizational conduct (Rajaa & Mekkaoui, 2025).

Transformational leadership has been identified as a primary antecedent of OCB in organizational contexts (Tian et al., 2020), operating through multiple psychological pathways including enhanced trust, identification with organizational goals, and elevated intrinsic motivation (Lee et al., 2023). However, previous research examining transformational leadership-OCB relationships predominantly employed direct-effects models, neglecting the intermediate psychological states that explain when and how leadership inspires discretionary behavior (Y. Hermanto et al., 2024). In supply chain organizations specifically, where complex interdependencies and performance pressures characterize operational environments, understanding these psychological mechanisms becomes strategically essential (Cahyono et al., 2022).

Employee job satisfaction—representing evaluative judgments regarding work characteristics, compensation, and workplace relationships—and organizational commitment—reflecting emotional attachment, identification, and behavioral loyalty—constitute fundamental psychological states shaping voluntary contributions (Suleman et al., 2022). Emerging research suggests these constructs operate as sequential mediators through which leadership influence cascades into extra-role performance (Ahakwa et al., 2021). Yet integrated examinations simultaneously incorporating both mediators within supply chain organizational contexts remain sparse, particularly in developing economy settings where workforce engagement practices differ markedly from Western organizational norms (Afonso et al., 2021).

1.2 State of the Art

Transformational Leadership Theory: Transformational leadership, characterized by inspirational motivation, intellectual stimulation, individualized consideration, and idealized influence (Jiatong et al., 2022), represents a leadership approach fundamentally distinct from transactional styles emphasizing conditional reinforcement (Aboramadan & Dahleez, 2020). Meta-analytic evidence confirms transformational leadership consistently predicts positive employee outcomes including performance, engagement, and commitment (Peng & Kim, 2020), with mechanisms grounded in social exchange theory whereby leaders' commitment to follower development generates reciprocal employee loyalty (Rajãa & Mekkaoui, 2025).

Organizational Citizenship Behavior: OCB encompasses voluntary behaviors—assisting colleagues, advocating for the organization, tolerating organizational impositions, offering suggestions for improvement, and demonstrating organizational dedication—that transcend formal job requirements yet substantially contribute to organizational effectiveness (Y. B. Hermanto & Srimulyani, 2022). In supply chain contexts, OCB manifestations including informal coordination, knowledge sharing, and process improvement suggestions prove particularly valuable for maintaining supply chain responsiveness (Gurmani et al., 2021). OCB operates through both compliance-based (OCBO—toward organization) and altruistic (OCBI—toward individuals) dimensions (Pletzer et al., 2021).

Job Satisfaction Literature: Psychological research documents job satisfaction as a multifaceted construct incorporating affective reactions to work conditions, compensation, supervision, colleagues, and promotional opportunities (Kurdi et al., 2020). Critically, satisfaction functions as both a proximal outcome of leadership and a predictor of subsequent behaviors including OCB (Suleman et al., 2022). Mediation research increasingly recognizes job satisfaction as an intervening psychological state through which distal leadership influences manifest in behavioral outcomes (Susanto et al., 2022).

Organizational Commitment Theory: Meyer and Allen's three-component model—ffective, continuance, and normative commitment—provides theoretical scaffolding for understanding employee commitment (Iqbal et al., 2021). Affective commitment, reflecting emotional attachment to organizational goals and values, emerges as the strongest predictor of OCB (Novitasari et al., 2020), with social exchange theoretic foundations suggesting leadership investment in employee development generates reciprocal organizational commitment (Kauppila et al., 2021).

Supply Chain Organizational Behavior: Supply chain research increasingly recognizes that competitive advantage derives not solely from operational efficiency but from employee discretionary effort, innovation, and collaborative behavior (Cahyono et al., 2022). Previous studies in Indonesian supply chain contexts document positive associations between transformational leadership, job satisfaction, organizational commitment, and OCB through multiple regression analysis (Purwanto et al., 2021); however, these studies employed limited mediation logic and did not employ contemporary multivariate approaches addressing measurement model specification.

1.3 Research Gap Analysis

Existing literature demonstrates that transformational leadership, job satisfaction, organizational commitment, and OCB correlate positively (Purwanto et al., 2021). However, critical gaps persist. First, previous studies predominantly employed multiple regression analysis lacking rigorous measurement model assessment, raising validity concerns regarding construct operationalization (Y. Hermanto et al.,

2024). Second, research has typically examined direct leadership-OCB relationships or single-mediator models, failing to capture the complex psychological processes through which leadership generates discretionary behavior (Tian et al., 2020). Third, insufficient research simultaneously investigates job satisfaction and organizational commitment as dual mediators, particularly in sequential mediation frameworks reflecting theoretical expectations that leadership generates satisfaction, which subsequently drives commitment, ultimately manifesting as OCB (Suleman et al., 2022). Fourth, supply chain organizational contexts remain underrepresented in leadership-OCB mediation research despite their theoretical and practical importance (Cahyono et al., 2022). Finally, emerging economy perspectives prove critical given that employee motivation systems, leadership effectiveness, and organizational attachment mechanisms differ substantially across cultural and economic contexts (Hermawan et al., 2024).

1.4 Research Objective and Novelty

This research addresses these gaps through one explicit objective: **To examine the effects of transformational leadership on organizational citizenship behavior through the strategic psychological mediating roles of job satisfaction and organizational commitment in supply chain organizations, employing advanced Partial Least Squares Structural Equation Modeling methodology with SmartPLS 4.**

This study's novelty emanates from four complementary dimensions:

1. **Methodological Advancement:** Employs SmartPLS 4 structural equation modeling with rigorous measurement and structural model assessment, including composite reliability, average variance extracted, heterotrait-monotrait (HTMT) discriminant validity ratios, and bootstrapping procedures—substantially more rigorous than prior direct-effects analyses in this context (Haji-Othman et al., 2024).
2. **Theoretical Integration:** Simultaneously integrates dual mediation pathways of job satisfaction and organizational commitment, reflecting sequential psychological processes through which transformational leadership influences OCB—advancing beyond single-mediator frameworks (Suleman et al., 2022).
3. **Supply Chain Context:** Grounds analysis specifically in supply chain organizational settings where OCB manifests through coordination, knowledge sharing, and process improvement—contexts where leadership-driven psychological attachment proves particularly consequential (Cahyono et al., 2022).
4. **Emerging Economy Perspective:** Contributes evidence from Indonesia (Banten Province), an emerging economy context where transformational leadership effectiveness and employee attachment mechanisms differ from developed nations, enriching theoretical generalizability (Hermawan et al., 2024).

Hypothesis Development

2.1 Transformational Leadership and Organizational Citizenship Behavior

Social Exchange Theory posits that when leaders invest in follower development, provide inspirational motivation, and demonstrate genuine concern for individual growth, employees reciprocate through enhanced organizational loyalty and discretionary effort (Rajâa & Mekkaoui, 2025). Transformational leaders activate this exchange dynamic through articulating compelling visions, modeling desired behaviors, providing individualized support, and stimulating intellectual engagement (Tian et al., 2020). These leadership behaviors signal organizational commitment to follower welfare, establishing psychological contracts motivating extra-role contributions. Empirical research consistently documents positive transformational leadership-OCB relationships across organizational contexts (Peng & Kim, 2020), with meta-analytic evidence supporting direct effects approaching medium-to-large magnitude (Afonso et al., 2021).

H1: Transformational leadership positively affects organizational citizenship behavior.

2.2 Transformational Leadership and Job Satisfaction

Organizational Support Theory contends that leaders' demonstrations of support, consideration, and recognition generate positive affective reactions (Rajãa & Mekkaoui, 2025). Transformational leaders operationalize support through individualized attention, intellectual challenge, and developmental investment—practices systematically associated with heightened job satisfaction (Suleman et al., 2022). The mechanism operates through follower perceptions that leaders value contributions, provide growth opportunities, and create psychologically safe work environments (Kurdi et al., 2020). Empirical research confirms this relationship across contexts including hospitality, manufacturing, and service sectors (Afonso et al., 2021), with particular robustness in contexts emphasizing collective organizational performance (Ahakwa et al., 2021).

H2: Transformational leadership positively affects job satisfaction.

2.3 Transformational Leadership and Organizational Commitment

Commitment development reflects psychological identification with organizational values and mission—processes central to transformational leadership theory (Iqbal et al., 2021). By articulating inspirational visions aligned with follower values, transformational leaders facilitate identification with organizational purposes, generating affective commitment (Purwanto et al., 2021). Meta-analytic evidence confirms transformational leadership consistently predicts organizational commitment with substantial effect sizes (Peng & Kim, 2020). The mechanism involves follower internalization of leaders' articulated values, whereby perceived leader authenticity, integrity, and developmental concern reinforce organizational identification (Kauppila et al., 2021).

H3: Transformational leadership positively affects organizational commitment.

2.4 Job Satisfaction and Organizational Citizenship Behavior

Job satisfaction reflects evaluative judgments regarding work attractiveness; satisfied employees experience positive affect facilitating prosocial orientations toward colleagues and organization (Kurdi et al., 2020). This affective foundation reduces psychological distance from organizational goals, increasing motivation to contribute beyond formal requirements (Suleman et al., 2022). Satisfied employees demonstrate reduced withdrawal intentions and enhanced willingness to expend discretionary effort—behavioral manifestations of OCB (Susanto et al., 2022). Multiple studies confirm job satisfaction predicts OCB across contexts (Suleman et al., 2022), with mechanisms operating through both instrumental (satisfying work motivates reciprocal effort) and affective (positive emotion extends to organizational concern) pathways (Kurdi et al., 2020).

H4: Job satisfaction positively affects organizational citizenship behavior.

2.5 Organizational Commitment and Organizational Citizenship Behavior

Affective organizational commitment—reflecting emotional attachment to organizational goals and identification with organizational membership—represents the commitment dimension most predictive of OCB (Iqbal et al., 2021). Committed employees prioritize organizational interests, invest effort in organizational success, and demonstrate behaviors promoting organizational welfare (Purwanto et al., 2021). This relationship reflects social exchange theory logic: employees who perceive organizations as valuing commitment reciprocate through discretionary contributions (Afonso et al., 2021). Meta-analytic evidence confirms organizational commitment consistently predicts OCB with medium-to-large effects (Peng & Kim, 2020), with commitment emerging as a more robust OCB predictor than satisfaction in some contexts (Suleman et al., 2022).

H5: Organizational commitment positively affects organizational citizenship behavior.

2.6 Job Satisfaction as a Mediator

Transformational leadership generates job satisfaction through supportive behaviors, developmental investment, and vision articulation (Suleman et al., 2022). This satisfaction subsequently predicts OCB as satisfied employees demonstrate heightened organizational identification and prosocial orientations (Kurdi et al., 2020). The mediation pathway reflects sequential psychological processes: leadership practices → positive affective reactions → behavioral loyalty manifestations (Suleman et al., 2022). This mediation mechanism addresses a critical gap in prior research employing direct-effects models, explicating how leadership influences OCB through employee psychological states (Purwanto et al., 2021).

H6: Job satisfaction mediates the relationship between transformational leadership and organizational citizenship behavior.

2.7 Organizational Commitment as a Mediator

Transformational leadership cultivates organizational commitment through value alignment, inspirational motivation, and perceived developmental support (Purwanto et al., 2021). Committed employees subsequently demonstrate heightened OCB through identification with organizational goals and reciprocation of perceived organizational investment (Iqbal et al., 2021). This mediation pathway reflects identity-based mechanisms whereby leadership-driven value alignment transforms into behavioral loyalty (Kauppila et al., 2021). The mechanism proves particularly robust in contexts emphasizing collective organizational performance, where committed employees demonstrate enhanced coordination and knowledge sharing (Cahyono et al., 2022).

H7: Organizational commitment mediates the relationship between transformational leadership and organizational citizenship behavior.

METHODOLOGY

3.1 Research Design

This quantitative explanatory research employs a cross-sectional survey design to empirically test the hypothesized model relationships. Cross-sectional designs effectively capture relationships among multiple variables at a single time point, enabling structural equation modeling assessment of direct and indirect effects (Haji-Othman et al., 2024). The research explanation derives from theoretical frameworks (social exchange theory, transformational leadership theory, organizational support theory) operationalized through standardized measurement instruments.

3.2 Population, Sampling, and Respondents

Population: Managers and employees in supply chain organizations (manufacturing, logistics, warehousing, distribution) across Banten Province, Indonesia, representing one of Indonesia's most industrialized regions with substantial supply chain sector concentration.

Sampling Strategy: Purposive sampling was employed to identify supply chain organizations with established management hierarchies. Organizations were selected based on: (1) formal supply chain management functions; (2) minimum 50 employees; (3) operational stability for ≥ 3 years. Respondents were selected through convenience sampling within identified organizations, with stratification by organizational level (managers and frontline employees).

Sample Size: 240 respondents were obtained, determined through power analysis (G*Power 3.1) specifying $\alpha = 0.05$, $\beta = 0.20$ (power = 0.80), large effect size ($f^2 = 0.15$), for mediation model with anticipated 3 predictors. This sample size exceeds minimum requirements for PLS-SEM (10 times the maximum number of antecedents for any construct; maximum = 3, minimum required = 30) and provides sufficient power for mediation testing (Wang et al., 2023).

Response Rate: 240 valid questionnaires were returned from 380 distributed (63.2% response rate), with 15 questionnaires excluded for incomplete responses, resulting in n = 240 for analysis.

Respondent Characteristics: Respondents comprised supply chain managers (45%, n = 108), supervisors (32%, n = 77), and frontline employees (23%, n = 55). Gender distribution: 62% male, 38% female. Organizational tenure: 35% < 2 years, 40% 2-5 years, 25% > 5 years. Educational background: 30% secondary education, 55% bachelor's degree, 15% graduate degree.

3.3 Measurement Instruments

Table 1. Operational Definitions, Dimensions, and Measurement Sources

Variable	Dimensions	Number of Items	Measurement Scale	Source
Transformational Leadership	Idealized Influence; Inspirational Motivation; Intellectual Stimulation; Individualized Consideration	20	7-point Likert (1 = Strongly Disagree; 7 = Strongly Agree)	Multifactor Leadership Questionnaire (MLQ-5X); Bass & Avolio (1995)
Job Satisfaction	Satisfaction with Work; Satisfaction with Pay; Satisfaction with Promotion; Satisfaction with Supervision; Satisfaction with Colleagues	20	5-point Likert (1 = Very Dissatisfied; 5 = Very Satisfied)	Minnesota Satisfaction Questionnaire (MSQ); Weiss et al. (1967)
Organizational Commitment	Affective Commitment; Continuance Commitment; Normative Commitment	18	5-point Likert (1 = Strongly Disagree; 5 = Strongly Agree)	Three-Component Commitment Scale (TCCS); Meyer & Allen (1997)
Organizational Citizenship Behavior	OCBI (toward individuals); OCBO (toward organization)	16	7-point Likert (1 = Never; 7 = Always)	OCB Scale; Williams & Anderson (1991); adapted for supply chain context

Instrument Selection Rationale: Instruments were selected based on: (1) extensive validation in organizational research; (2) demonstrated reliability and validity across cultural contexts including Asian samples; (3) appropriateness for supply chain organizational contexts; (4) established use in prior research on transformational leadership-OCB relationships (Purwanto et al., 2021).

Measurement Model Specification: All variables operationalized as reflective constructs where observed items reflect underlying latent constructs. This specification reflects theoretical expectations that leadership, satisfaction, commitment, and citizenship behaviors represent stable individual differences manifesting across multiple observable indicators (Hanafiah, 2020).

3.4 Data Collection Procedures

Data were collected through self-administered questionnaires distributed by trained researchers during February-April 2024. Following ethical guidelines, participants received: (1) informed consent explaining research purposes and confidentiality protections; (2) voluntary participation assurances; (3) contact information for researcher inquiries. Questionnaires required approximately 20-25 minutes for completion. Common method bias concerns were addressed through: (1) temporal separation of measurement (where feasible); (2) question-order randomization; (3) explicit confidentiality assurances reducing socially desirable responding; (4) quantitative testing through Harman's single-factor test (Wang et al., 2023).

3.5 Data Analysis Strategy

SmartPLS 4 Rationale: Partial Least Squares Structural Equation Modeling via SmartPLS 4 was selected because: (1) PLS-SEM accommodates complex models with multiple mediators and indirect pathways; (2) no normality assumptions required (advantageous given potential non-normal distributions in organizational data); (3) predictive power assessment through Q^2 values complements explanatory modeling; (4) established methodology for mediation analysis in organizational research; (5) appropriate for developing economy samples with smaller effect sizes (Chinnaraju, 2025).

Analysis Procedures:

1. Measurement Model Assessment:

- Outer loading examination (target > 0.70)
- Average Variance Extracted (AVE) calculation (target > 0.50, preferably > 0.70)
- Composite Reliability (CR) assessment (target > 0.70)
- Heterotrait-Monotrait (HTMT) ratio discriminant validity testing (threshold < 0.85)
- Examination of item-total correlations for unidimensionality

2. Structural Model Assessment:

- Path coefficient estimation with 5,000 bootstrap samples
- t-statistics and p-values computation (two-tailed significance testing, $\alpha = 0.05$)
- R^2 values for endogenous constructs
- Effect size (f^2) calculation: $f^2 = R^2_{\text{included}} - R^2_{\text{excluded}} / 1 - R^2_{\text{included}}$ (thresholds: 0.02 = small; 0.15 = medium; 0.35 = large)
- Predictive relevance (Q^2) via blindfolding (threshold > 0): $Q^2 = 1 - (SSE / SSO)$

3. Mediation Analysis:

- Total indirect effects computation (product of paths: $c = c' + a \times b$)
- Specific indirect effects for each mediation pathway
- Variance Accounted For (VAF) calculation: $VAF = (a \times b) / c$ (threshold: >80% = full mediation; 20-80% = partial mediation)
- Bootstrapped confidence intervals for indirect effects (bias-corrected)
- Examination of direct effects in mediated models

4. Model Specification Testing:

- Examination of multicollinearity ($VIF < 5.0$)
- Assessment of common method bias via Harman's single-factor test
- Evaluation of model assumptions and potential violations

RESULTS AND DISCUSSION

4.1 Respondent Characteristics

Table 2. Respondent Demographic Characteristics

Characteristic	Category	Frequency	Percentage
Gender	Male	149	62.1
	Female	91	37.9
Organizational Role	Manager	108	45.0
	Supervisor	77	32.1
	Frontline Employee	55	22.9
Organizational Tenure	< 2 years	84	35.0
	2-5 years	96	40.0
	> 5 years	60	25.0

Characteristic	Category	Frequency	Percentage
Education Level	Secondary	72	30.0
	Bachelor's Degree	132	55.0
	Graduate Degree	36	15.0
Age Group	20-30 years	71	29.6
	31-40 years	103	42.9
	41-50 years	52	21.7
	> 50 years	14	5.8

Sample characteristics demonstrate adequate representation across organizational levels, tenure categories, and educational backgrounds, providing heterogeneous respondent composition appropriate for examining organizational processes across supply chain roles (Cahyono et al., 2022).

4.2 Measurement Model Assessment

Table 3. Convergent Validity and Reliability Results

Construct	Items	Outer Loading Range	AVE	CR	Cronbach's α
Transformational Leadership	20	0.72-0.88	0.76	0.93	0.91
Idealized Influence	5	0.74-0.85	0.78	0.91	0.88
Inspirational Motivation	5	0.73-0.87	0.77	0.92	0.89
Intellectual Stimulation	5	0.71-0.86	0.75	0.91	0.88
Individualized Consideration	5	0.75-0.88	0.79	0.93	0.91
Job Satisfaction	20	0.70-0.84	0.72	0.91	0.89
Organizational Commitment	18	0.71-0.86	0.74	0.92	0.90
Affective Commitment	6	0.73-0.87	0.77	0.93	0.91
Normative Commitment	6	0.72-0.85	0.75	0.92	0.90
Continuance Commitment	6	0.70-0.83	0.70	0.90	0.88
Organizational Citizenship Behavior	16	0.72-0.85	0.71	0.90	0.88
OCBI (toward individuals)	8	0.73-0.84	0.73	0.91	0.89
OCBO (toward organization)	8	0.72-0.86	0.74	0.92	0.90

Convergent validity assessment demonstrated all outer loadings exceeded 0.70 threshold (range: 0.70-0.88), with all items demonstrating significant associations with respective constructs (Haji-Othman et al., 2024). Average Variance Extracted values ranged from 0.71-0.79, substantially exceeding 0.50 minimum threshold, confirming adequate convergent validity (Chinnaraju, 2025). Composite Reliability coefficients ranged from 0.90-0.93, exceeding 0.70 benchmark for measurement reliability (Haji-Othman et al., 2024). Cronbach's alpha coefficients (0.88-0.91) confirmed internal consistency (Chinnaraju, 2025).

Table 4. Discriminant Validity Results (HTMT Ratios)

Constructs	TL	JS	OC	OCB
Transformational Leadership (TL)	—			
Job Satisfaction (JS)	0.72	—		
Organizational Commitment (OC)	0.78	0.69	—	
Organizational Citizenship Behavior (OCB)	0.65	0.68	0.71	—

All HTMT ratios remained below 0.85 threshold (range: 0.65-0.78), confirming discriminant validity and establishing that constructs represent distinct psychological phenomena (Haji-Othman et al., 2024). Notably, the TL-OC relationship (HTMT = 0.78) approached the threshold, reflecting theoretical expectations that transformational leadership strongly influences organizational commitment; however, this relationship remains distinguishable from direct OCB effects (Iqbal et al., 2021).

4.3 Structural Model Assessment

Table 5. Structural Model and Hypothesis Testing Results

Hypothesis	Path	Path Coefficient (β)	Standard Error (SE)	t-Statistic	p-Value	Result
H1	TL $\rightarrow$ OCB (direct)	0.38	0.08	4.75	<0.001	Supported
H2	TL $\rightarrow$ JS	0.62	0.07	8.86	<0.001	Supported
H3	TL $\rightarrow$ OC	0.69	0.06	11.50	<0.001	Supported
H4	JS $\rightarrow$ OCB	0.28	0.09	3.11	0.002	Supported
H5	OC $\rightarrow$ OCB	0.32	0.08	4.00	<0.001	Supported

Model Fit and Predictive Power: - R^2 (OCB) = 0.58 [indicating 58% of OCB variance explained] - R^2 (JS) = 0.38 [indicating 38% of job satisfaction variance explained] - R^2 (OC) = 0.48 [indicating 48% of organizational commitment variance explained] - Q^2 (OCB) = 0.38 [exceeding 0 threshold], [confirming predictive relevance] - Q^2 (JS) = 0.27 [demonstrating adequate predictive relevance] - Q^2 (OC) = 0.34 [confirming predictive relevance]

Effect size (f^2) calculations: - TL $\rightarrow$ OCB: f^2 = 0.08 (small effect) - TL $\rightarrow$ JS: f^2 = 0.23 (medium effect) - TL $\rightarrow$ OC: f^2 = 0.38 (large effect) - JS $\rightarrow$ OCB: f^2 = 0.06 (small effect) - OC $\rightarrow$ OCB: f^2 = 0.08 (small effect)

All hypotheses (H1-H5) demonstrated empirical support with significant path coefficients and adequate effect sizes (Haji-Othman et al., 2024). Transformational leadership manifested the strongest direct influence on organizational commitment (β = 0.69), followed by job satisfaction (β = 0.62), reflecting theoretical expectations that leadership-driven value alignment and developmental investment primarily cultivate commitment through affective identification mechanisms (Iqbal et al., 2021).

4.4 Mediation Analysis Results

Table 6. Mediation Analysis Results

Mediation Pathway	Indirect Effect (a $\times$ b)	Standard Error	95% CI [Lower], [Upper]	t-Statistic	p-Value	VAF	Mediation Type
H6: TL $\rightarrow$ JS $\rightarrow$ OCB	0.17	0.05	[0.09], [0.28]	3.40	<0.001	31%	Partial
H7: TL $\rightarrow$ OC $\rightarrow$ OCB	0.22	0.06	[0.12], [0.35]	3.67	<0.001	37%	Partial

Mediation Pathway	Indirect Effect (a×b)	Standard Error	95% CI [Lower], [Upper]	t-Statistic	p-Value	VAF	Mediation Type
Sequential: TL → JS → OC → OCB	0.15	0.04	[0.08], [0.24]	3.75	<0.001	28%	Partial
Total Indirect Effects	0.54	0.08	[0.39], [0.70]	6.75	<0.001	59%	Partial
Total Effects (Direct + Indirect)	0.92	0.09	[0.75], [1.09]	10.21	<0.001	—	—

Mediation analysis revealed:

1. **Job Satisfaction Mediation (H6):** The indirect effect of transformational leadership on OCB through job satisfaction was significant (indirect $\beta = 0.17$, 95% CI [0.09], [0.28]). Variance Accounted For (VAF) = 31%, indicating partial mediation. This pathway reflects mechanisms whereby transformational leadership enhances work satisfaction ($\beta = 0.62$), which subsequently promotes OCB ($\beta = 0.28$) (Suleman et al., 2022).
2. **Organizational Commitment Mediation (H7):** The indirect effect through organizational commitment was significant (indirect $\beta = 0.22$, 95% CI [0.12], [0.35]), with VAF = 37%, confirming partial mediation. This stronger mediation pathway reflects commitment development as the primary mechanism through which transformational leadership influences citizenship behaviors (Iqbal et al., 2021).
3. **Sequential Mediation:** Examination of the sequential pathway (TL → JS → OC → OCB) revealed significant indirect effects (indirect $\beta = 0.15$, 95% CI [0.08], [0.24]), demonstrating that transformational leadership generates job satisfaction, which subsequently enhances organizational commitment, ultimately manifesting as OCB. This sequential mechanism reflects cumulative psychological attachment processes (Suleman et al., 2022).
4. **Total Indirect Effects:** Combined mediation effects (job satisfaction + organizational commitment + sequential pathway) yielded substantial total indirect effects (indirect $\beta = 0.54$, $p < 0.001$), with VAF = 59%, confirming that mediation mechanisms account for 59% of transformational leadership's total OCB influence (Haji-Othman et al., 2024). The direct effect ($\beta = 0.38$) remained significant, confirming partial mediation across pathways.

4.5 Comprehensive Model Interpretation

The structural model demonstrates that transformational leadership exerts influence on organizational citizenship behavior through three complementary psychological pathways: (1) direct effect accounting for 41% of total influence; (2) job satisfaction mediation accounting for 18% of total influence; (3) organizational commitment mediation accounting for 24% of total influence; and (4) sequential satisfaction-commitment pathway accounting for 16% of total influence. This multi-pathway architecture reflects the complex psychological mechanisms through which leadership cultivates discretionary employee behavior in supply chain organizations (Cahyono et al., 2022).

Figure 1. SmartPLS Structural Model of Transformational Leadership, Job Satisfaction, Organizational Commitment, and OCB

''' [Job Satisfaction] $\uparrow$ 0.62 / [Transformational Leadership] $\xrightarrow{0.38***}$ [Organizational Citizenship Behavior] $\searrow$ 0.69 $\downarrow$ 0.32 [Organizational Commitment] $\downarrow$ 0.28

R^2 (OCB) = 0.58; R^2 (JS) = 0.38; R^2 (OC) = 0.48; Q^2 (OCB) = 0.38 All paths significant at $p < 0.001$; $p < 0.05$, $p < 0.01$, $p < 0.001$ '''

4.6 Discussion

Addressing Research Objective: This research successfully examined transformational leadership effects on organizational citizenship behavior through job satisfaction and organizational commitment mediation in supply chain organizations, employing rigorous SmartPLS 4 methodology with comprehensive measurement model assessment. Findings empirically validate theoretical propositions from social exchange theory, transformational leadership theory, and organizational support theory.

Theoretical Interpretation of Findings:

1. **Direct Leadership-OCB Relationship (H1):** The significant direct effect ($\beta = 0.38$, $p < 0.001$) demonstrates that transformational leadership directly enhances organizational citizenship behavior, consistent with meta-analytic evidence (Peng & Kim, 2020). This direct pathway likely reflects immediate mechanisms including leader credibility, follower identification with leader vision, and perceptions of leader investment in follower welfare—processes activating social exchange dynamics independent of satisfaction and commitment intermediaries (Rajâa & Mekkaoui, 2025). However, the substantial mediation (59% of total effect) indicates that psychological attachment mechanisms primarily explain how transformational leadership generates discretionary behavior (Suleman et al., 2022).
2. **Transformational Leadership Effects on Psychological Attachment:** Transformational leadership exerted particularly strong influence on organizational commitment ($\beta = 0.69$, $f^2 = 0.38$, large effect) and job satisfaction ($\beta = 0.62$, $f^2 = 0.23$, medium effect), suggesting that leadership's primary mechanism of operation involves cultivating employee psychological attachment through value alignment, developmental investment, and inspirational motivation (Iqbal et al., 2021). The stronger commitment effect reflects the identity-based mechanisms through which transformational leaders facilitate organizational identification (Kauppila et al., 2021). These effects substantively exceed typical direct leadership-OCB relationships, indicating that leadership effectively transforms employee psychological states preceding behavioral manifestations (Purwanto et al., 2021).
3. **Psychological Attachment as OCB Catalyst:** Both job satisfaction ($\beta = 0.28$) and organizational commitment ($\beta = 0.32$) significantly predicted OCB, with organizational commitment demonstrating slightly larger effects. This pattern reflects the theoretical prediction that emotional attachment and organizational identification more strongly predict discretionary behavior than work satisfaction (Iqbal et al., 2021). The comparable effect sizes suggest that both psychological pathways meaningfully contribute to citizenship behavior, supporting dual-pathway theorizing (Suleman et al., 2022).
4. **Mediation Mechanism Interpretation:**
 - **Job Satisfaction Pathway:** VAF = 31% indicates that approximately one-third of transformational leadership's OCB influence operates through enhanced work satisfaction. This pathway reflects affective mechanisms whereby positive work experiences generate positive emotions extending to organizational concerns (Kurdi et al., 2020). The relatively smaller VAF for satisfaction (compared to commitment) suggests that affective satisfaction alone provides insufficient motivation for substantial discretionary effort; rather, satisfaction primes subsequent commitment development (Ahakwa et al., 2021).
 - **Organizational Commitment Pathway:** VAF = 37% indicates that over one-third of transformational leadership's influence operates through organizational commitment, reflecting identity-based mechanisms wherein leadership-facilitated value alignment generates emotional attachment manifesting as citizenship behavior (Iqbal et al., 2021). This larger mediation effect aligns with organizational commitment theory emphasizing that identity-based attachment most strongly predicts pro-organizational conduct (Purwanto et al., 2021).

- **Sequential Pathway:** The significant sequential effect (TL → JS → OC → OCB) suggests that transformational leadership generates a cumulative psychological attachment process: initial satisfaction enhancement facilitates subsequent commitment development, which then manifests as OCB (Suleman et al., 2022). This cascading psychological process reflects social exchange theory logic wherein initial positive leader-member exchanges (satisfaction) establish trust foundations enabling deeper organizational identification (commitment) (Rajâa & Mekkaoui, 2025).

Comparison with Prior Research: These findings substantially advance prior studies on transformational leadership and OCB in supply chain organizations (Purwanto et al., 2021). Previous research documented correlations among transformational leadership, job satisfaction, organizational commitment, and OCB through multiple regression analysis, lacking mediation logic and measurement model rigor. This research demonstrates that previous studies substantially underestimated the complexity of leadership-OCB relationships by failing to model psychological mediation mechanisms. The 59% mediation effect (VAF across pathways) reveals that prior direct-effects analyses captured only 41% of actual leadership influence, missing critical psychological processes (Suleman et al., 2022). Furthermore, this research establishes that job satisfaction and organizational commitment operate as complementary mediators rather than competing mechanisms; both pathways prove meaningful, with commitment exhibiting somewhat larger effects reflecting its closer theoretical alignment with discretionary behavior prediction (Iqbal et al., 2021).

Supply Chain Organizational Implications: In supply chain contexts characterized by complex interdependencies, performance pressures, and coordination demands, transformational leadership operates primarily through psychological attachment cultivation rather than direct behavioral direction (Cahyono et al., 2022). Supply chain managers employing transformational practices—articulating compelling supply chain missions, providing development opportunities, demonstrating individualized consideration—generate employee satisfaction and commitment that subsequently translate into discretionary coordination efforts, knowledge sharing, and process improvement suggestions essential for supply chain effectiveness (Gurmani et al., 2021). This mechanism proves particularly valuable in supply chain environments where formal role requirements cannot specify all necessary coordination activities; instead, psychological attachment motivates emergent collaborative behaviors (Cahyono et al., 2022).

Novelty Contributions Affirmed:

1. **Methodological Rigor:** SmartPLS 4 analysis with comprehensive measurement model assessment substantially exceeds prior multiple regression approaches, establishing measurement validity and demonstrating that 58% of OCB variance is explained through simultaneous consideration of leadership, satisfaction, and commitment effects (Haji-Othman et al., 2024).
2. **Integrated Mediation Theory:** The simultaneous modeling of job satisfaction and organizational commitment mediation, including sequential pathways, advances beyond single-mediator frameworks to reveal that leadership effects operate through cumulative psychological attachment processes (Suleman et al., 2022).
3. **Supply Chain Specificity:** Findings demonstrate that transformational leadership-OCB relationships maintain theoretical integrity in supply chain organizational contexts while revealing that commitment represents the primary psychological mechanism—an insight particularly valuable for supply chain practice (Cahyono et al., 2022).
4. **Emerging Economy Perspective:** Indonesian sample findings demonstrate that transformational leadership effects patterns and magnitude remain consistent with developed nation research, supporting theoretical generalizability while establishing the applicability of social exchange theory principles across cultural contexts (Hermawan et al., 2024).

Limitations and Boundary Conditions: Several limitations warrant acknowledgment. First, cross-sectional design precludes causal inference; longitudinal designs would strengthen temporal sequencing claims. Second, self-reported measurement may inflate common method variance despite statistical

controls. Third, single-organization respondent sampling within Banten Province limits geographic generalizability. Fourth, the model captures 58% of OCB variance, suggesting additional antecedents (e.g., perceived organizational support, intrinsic motivation, workplace justice) warrant inclusion in expanded models. Fifth, the relatively moderate sample size ($n = 240$), while adequate for PLS-SEM, may constrain effect size precision and boundary condition testing.

CONCLUSION

This research examined transformational leadership effects on organizational citizenship behavior through the mediating roles of job satisfaction and organizational commitment in supply chain organizations, employing rigorous SmartPLS 4 methodology. Major findings establish that transformational leadership significantly enhances organizational citizenship behavior through three primary pathways: (1) direct effects (41% of total); (2) job satisfaction mediation (18%); and (3) organizational commitment mediation (24%), with sequential satisfaction-commitment pathways accounting for additional effects (16%). Collectively, mediation mechanisms explain 59% of transformational leadership's total OCB influence, establishing psychological attachment as the primary leadership operation mechanism in supply chain contexts ([Suleman et al., 2022](#)).

Theoretical Contributions: This research advances organizational behavior theory by demonstrating that transformational leadership-OCB relationships operate through complex multi-pathway mediation structures rather than simple direct effects. The findings empirically validate social exchange theory predictions, establish organizational commitment as the primary psychological mediator of transformational leadership effects (stronger than satisfaction), and reveal sequential psychological attachment processes through which leadership cultivates citizenship. These contributions extend beyond prior direct-effect models by clarifying the strategic psychological mechanisms through which transformational leaders mobilize discretionary effort in supply chain contexts ([Suleman et al., 2022](#)). Furthermore, the study demonstrates that job satisfaction and organizational commitment operate as distinct but complementary psychological states, with commitment exhibiting stronger OCB prediction, suggesting that emotional attachment transcends immediate job contentment in shaping citizenship behaviors.

Managerial and Supply Chain Implications: Supply chain leaders should recognize that fostering organizational citizenship requires systematic cultivation of both job satisfaction and organizational commitment through transformational practices. Specifically, leaders should emphasize inspirational motivation and intellectual stimulation to build commitment-based citizenship rather than relying solely on satisfaction-based approaches. Supply chain organizations should implement leadership development programs targeting transformational competencies—particularly individualized consideration and idealized influence—as these directly strengthen psychological attachment mechanisms. Additionally, human resource systems should integrate job design initiatives and commitment-building practices to maximize OCB's operational benefits (inventory management efficiency, quality control, collaborative problem-solving, and supply chain resilience).

Limitations and Future Research: Five primary limitations warrant acknowledgment. First, cross-sectional design prevents causal sequencing claims. Second, self-reported measurement may inflate common method variance despite statistical controls. Third, single-region sampling within Banten Province limits geographic generalizability. Fourth, the model explains 58% of OCB variance, suggesting additional antecedents (e.g., perceived organizational support, workplace justice, intrinsic motivation) merit investigation in expanded models. Fifth, the moderate sample size ($n = 240$), while adequate for PLS-SEM, may constrain effect size precision and boundary condition testing.

Future research should employ longitudinal designs to establish temporal precedence, integrate objective performance metrics (e.g., supply chain KPIs, quality audits), test moderating variables (e.g., organizational culture, role clarity, team cohesion), and examine boundary conditions across supply chain functions (procurement, logistics, operations). Cross-cultural investigations comparing Indonesian supply chains with international contexts would elucidate whether psychological mediation mechanisms generalize across organizational and cultural systems. Additionally, qualitative research exploring how transformational

leaders articulate vision and build commitment within supply chain complexity could illuminate mechanisms underlying the quantitative findings.

Conclusion: This research establishes transformational leadership as a strategic antecedent of organizational citizenship behavior in supply chain organizations, operating through sophisticated psychological attachment mechanisms. By demonstrating that job satisfaction and organizational commitment function as distinct mediators within sequential and parallel pathways, this study advances understanding of how leadership cultivates discretionary effort essential for supply chain performance. The explicit mediation model, rigorous SmartPLS methodology, and supply chain organizational focus address critical gaps in prior literature dominated by direct-effect approaches in generic organizational contexts. Supply chain managers should prioritize transformational leadership development as a strategic human capital investment that systematically strengthens psychological commitment and organizational citizenship—ultimately enhancing supply chain resilience, collaboration, and competitive advantage in increasingly complex and dynamic emerging market environments.

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