

Agile Leadership and Workforce Productivity in Saudi Arabia's Ministry of Human Resources and Social Development: The Mediating Role of Employee Engagement

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Abstract: *This study examines how Agile Leadership relates to Workforce Productivity through Employee Engagement within Saudi Arabia's Ministry of Human Resources and Social Development (MHRSD). Drawing on Job Demands-Resources Theory and Social Exchange Theory, the paper tests a coherent mediation model in which Agile Leadership is associated with productivity directly and indirectly through engagement. A quantitative cross-sectional design was used, with questionnaire data from 390 MHRSD employees analyzed through SPSS and Partial Least Squares Structural Equation Modeling. The measurement model showed strong reliability and convergent validity, while discriminant validity was satisfactory. Hypothesis testing supported positive relationships between Agile Leadership and Workforce Productivity, Agile Leadership and Employee Engagement, and Employee Engagement and Workforce Productivity. The indirect effect of Agile Leadership on Workforce Productivity through Employee Engagement was 0.584, with $Z = 11.35$ and a confidence interval of $[0.468, 0.663]$, supporting an indirect-effect-dominant mediation pattern. The findings position engagement as an important psychological mechanism connecting adaptive leadership practices with employee productivity in a transforming public-sector institution. The paper offers evidence for leadership development and engagement-focused workforce strategies within MHRSD while recognizing the limits of cross-sectional, self-reported data.*

Keywords: Agile Leadership, Employee Engagement, Workforce Productivity, Saudi Public Sector, Job Demands-Resources Theory, Social Exchange Theory.

1. Introduction

Saudi Arabia's public sector is undergoing institutional and digital transformation, placing emphasis on human-capital capability, service quality, and organizational performance. The Ministry of Human Resources and Social Development identifies improved public-sector performance, stronger human-capital management, and higher job performance as priorities aligned with Saudi Vision 2030 (Ministry of Human Resources and Social Development [MHRSD], 2025). Within such settings, leadership must support adaptation while maintaining employee involvement in changing work systems. Recent evidence shows that agile leaders can accelerate decision cycles, broaden participation, and make organizations more efficient during digital transformation (Rialti & Filieri, 2024). These characteristics make Agile Leadership especially relevant to government organizations that must respond to reform requirements without weakening continuity, accountability, or workforce commitment.

Leadership alone, however, does not explain how employees translate organizational change into productive behavior. Job Demands–Resources Theory treats work resources as motivational conditions that can strengthen engagement and performance, providing a mechanism for linking supportive leadership with employee outcomes (Bakker & Demerouti, 2024). Social Exchange

Theory complements this logic by explaining why employees may reciprocate organizational treatment with stronger involvement and contribution (Cropanzano & Mitchell, 2005). Contemporary meta-analytic evidence indicates that constructive leadership is positively associated with work engagement and that engagement helps transmit leadership effects to job performance (Pletzer et al., 2024). Public-sector evidence similarly shows that supportive leadership can influence performance directly and indirectly through employee engagement (Li et al., 2025).

Employee Engagement is therefore central to understanding whether Agile Leadership contributes to Workforce Productivity through a motivational pathway rather than only through managerial direction. Public-administration scholarship identifies engagement as a consequential construct for public-sector performance while noting fragmented evidence and continuing needs for context-sensitive research (Santosa et al., 2025). Direct evidence on agile leadership is still uneven: one 2025 study found positive effects on employee performance and engagement in a public organization (Saimin et al., 2025). By contrast, research in an Afghan bank reported no direct Agile Leadership effect on performance, although an indirect pathway through intrinsic motivation was significant (Nikzad & Udin, 2025). These mixed findings make mechanism-focused examination important, particularly where institutional transformation and public-service responsibilities intersect.

This paper examines the core model tested among 390 employees of Saudi Arabia's MHRSD. It addresses four questions: whether Agile Leadership is positively related to Workforce Productivity, whether Agile Leadership is positively related to Employee Engagement, whether Employee Engagement is positively related to Workforce Productivity, and whether Employee Engagement mediates the Agile Leadership–Workforce Productivity relationship. The paper contributes by evaluating these relationships together in one Saudi ministry rather than isolating leadership or engagement from the motivational mechanism. Its empirical analysis is grounded exclusively in verified final study results, with model-specific statistics kept separate where different analytical specifications were reported. This approach preserves the study's evidence while presenting a focused academic journal argument on how agile leadership and employee engagement jointly relate to productivity in a public-sector transformation context.

1.1 Literature Review

Job Demands–Resources (JD-R) Theory explains the model by proposing that resources can energize employees and support work behavior through motivational processes (Bakker & Demerouti, 2024). Within this paper, Agile Leadership is treated as an organizational resource because adaptive and empowering leadership behaviors can help employees navigate demands. Employee Engagement represents the motivational state connecting resources with productive behavior, consistent with the theory's emphasis on vigor, dedication, and sustained involvement. Social Exchange Theory adds a reciprocal mechanism: employees who perceive supportive treatment may respond with stronger contribution and commitment (Cropanzano & Mitchell, 2005). A meta-analysis found that constructive leadership was positively related to followers' engagement and that engagement partially mediated leadership–performance relationships (Pletzer et al., 2024). Together, JD-R and SET explain why agile leadership may relate to productivity directly and through employee engagement in practice.

1.2 Workforce Productivity

Workforce Productivity is the focal outcome and is operationalized as employees' perceived effectiveness and contribution to work outcomes within MHRSD. Public-sector performance depends on converting employee effort into reliable and efficient service delivery, making workforce performance a central administrative concern (Santosa et al., 2025). Recent public-organization evidence shows that leadership and workplace conditions can shape employee performance through direct and engagement-based pathways (Li et al., 2025). Research in commercial banking likewise found that work engagement positively affected employee performance and mediated leader–member exchange effects (Khuc, 2024). These findings support treating productivity as an outcome reflecting

managerial direction and employees' psychological investment in work. In this study, productivity was initially assessed with 13 items, including three reverse-coded counterproductive-behavior items, before final analysis reported a refined 10-item specification for measurement assessment. This operational refinement is preserved rather than obscured. The retained specification represents the empirical measurement basis used for construct diagnostics.

1.3 Agile Leadership and Workforce Productivity

Agile Leadership emphasizes rapid sense-making, adaptive decision processes, participation, and responsiveness when organizations face changing conditions. Direct observation of a successful digital transformation found that agile leaders used fast decision loops and continuous participation while making the organization leaner and more efficient (Rialti & Filieri, 2024). These practices provide a plausible route to workforce productivity because they can reduce delays, strengthen coordination, and align employee action with emerging priorities. Evidence from a public-sector study reported a positive Agile Leadership effect on employee performance, supporting the expected performance relationship beyond private-sector settings (Saimin et al., 2025). Taken together, these findings indicate that leadership agility can support performance when adaptive practices are translated into coordinated employee action within changing organizational settings. Not all recent findings are uniform, which is important for a balanced hypothesis rationale. Research among employees of an Afghan microfinance bank found no direct effect of Agile Leadership on performance, although an indirect effect through intrinsic motivation was significant (Nikzad & Udin, 2025). Another 2025 study similarly reported that Agile Leadership did not directly improve employee performance while workforce agility fully mediated the relationship (Prasetiawan et al., 2025). The contrasting evidence suggests that leadership agility may sometimes operate through intervening employee capabilities or motivational states rather than through a uniformly strong direct pathway. In MHRSD, however, the original model proposes both a direct relationship and an engagement-mediated mechanism, allowing the direct proposition to be tested without assuming that mediation eliminates it in this context.

H1: Agile Leadership has a direct and positive impact on Workforce Productivity.

1.4 Agile Leadership and Employee Engagement

Employee Engagement describes a positive work-related state expressed through vigor, dedication, and absorption, the three dimensions represented in the UWES-9 instrument (Schaufeli et al., 2006). Agile Leadership may strengthen this state when leaders communicate responsively, involve employees in decisions, and provide discretion for responding to changing work demands. JD-R Theory supports this mechanism because leadership behaviors can function as resources that sustain motivation when employees face demanding or uncertain work conditions (Bakker & Demerouti, 2024). SET provides a complementary explanation in which supportive and empowering treatment can be reciprocated through greater psychological involvement in work (Cropanzano & Mitchell, 2005). Empirical evidence is consistent with this expectation. In a public-sector study, Agile Leadership had a positive effect on Employee Engagement alongside its performance effect (Saimin et al., 2025). A qualitative investigation of digital transformation found that agile leadership broadened employee participation and increased morale, indicating that agility-oriented leadership can help organizational members feel part of the transformation process (Rialti & Filieri, 2024). A 2025 PLS-SEM study likewise reported that Agile Leadership significantly strengthened work engagement in a service setting (Tiong et al., 2025). Broader leadership evidence also reinforces the motivational pathway: a meta-analysis found a positive association between constructive leadership and followers' work engagement (Pletzer et al., 2024). These findings converge on the idea that leadership becomes motivational when employees experience participation, support, adaptability, and meaningful involvement. The MHRSD setting provides a useful test because employees operate within a public institution facing continuing administrative and digital change, while the study measures Agile Leadership as a unified behavioral construct rather than dividing it into untested

dimensions. That alignment places engagement between leadership resources and productive behavior.

H2: Agile Leadership positively influences Employee Engagement.

1.5 Employee Engagement and Workforce Productivity

Employee Engagement can contribute to Workforce Productivity because engaged employees invest physical, cognitive, and emotional energy in their roles. The UWES tradition conceptualizes engagement through vigor, dedication, and absorption, characteristics that describe sustained energy, involvement, and concentration at work (Schaufeli et al., 2006). JD-R Theory identifies engagement as a central motivational state through which job resources can translate into stronger work behavior and performance (Bakker & Demerouti, 2024). Evidence supports this performance connection across different organizational settings. A 2024 study of university employees found that work engagement mediated the relationship between flexible work and job performance, indicating that favorable work arrangements can improve performance through an engagement pathway (Naqshbandi et al., 2024). Research on 567 bank employees reported a positive effect of work engagement on employee performance and a positive mediating role between leader–member exchange and performance (Khuc, 2024). In public organizations, a 2025 study found that engagement acted as a pivotal mechanism through which leadership and workplace climate were associated with better employee performance (Li et al., 2025). Evidence from government employees in 2026 also showed that work engagement partially mediated leadership-related effects on performance (Pohan et al., 2026). These studies vary in leadership constructs, occupations, and national contexts, but they consistently position engagement near the behavioral pathway to performance. That consistency is relevant to the present paper because Workforce Productivity is assessed at the employee level and Employee Engagement is explicitly modeled as a mediator. The proposed relationship does not imply that engagement is the only determinant of productivity; rather, it tests whether higher engagement is associated with stronger productivity within the defined MHRSD model. This bounded formulation respects the cross-sectional design while retaining the original theoretical expectation. This relationship is treated as a core motivational link in the model.

H3: Employee Engagement positively affects Workforce Productivity.

1.6 The Mediating Role of Employee Engagement

The mediation proposition integrates the three direct relationships into one explanatory mechanism: Agile Leadership may relate to Workforce Productivity partly because leadership practices strengthen Employee Engagement, which is then associated with productive behavior. JD-R Theory supports this sequence by locating engagement within the motivational process through which resources contribute to performance (Bakker & Demerouti, 2024). SET adds that favorable leader–employee exchanges may elicit reciprocal employee investment, making engagement a plausible psychological bridge between leadership and contribution (Cropanzano & Mitchell, 2005). Recent evidence supports engagement-based leadership mediation. A 2024 meta-analysis found that work engagement partially mediated the relationship between constructive leadership and follower job performance, with the engagement pathway prominent (Pletzer et al., 2024). Public-sector research in 2025 reported that Employee Engagement mediated the effect of Agile Leadership on employee performance (Saimin et al., 2025). Another study across 30 public organizations found significant direct and indirect leadership effects on employee performance, with engagement serving as a mediating mechanism (Li et al., 2025). Evidence from 2026 government employees similarly showed partial engagement mediation for leadership-related performance effects (Pohan et al., 2026). Conversely, recent Agile Leadership studies have identified alternative mediators such as intrinsic motivation and workforce agility, suggesting that the mechanism may vary across settings (Nikzad & Udin, 2025). The present model does not test those alternative mechanisms and therefore does not compare mediators. Instead, it tests the original thesis proposition that Employee Engagement carries the Agile Leadership–Workforce Productivity relationship within MHRSD. This focus provides a coherent

theory-to-evidence pathway while keeping the paper within the approved variables and empirical results.

H4: Employee Engagement mediates the relationship between Agile Leadership and Workforce Productivity.

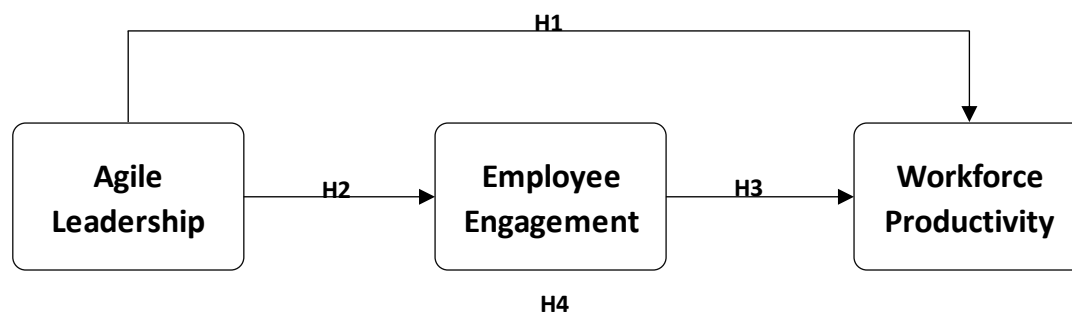


Figure 1: Conceptual Framework

2. Methodology

2.1 Research Design

This paper uses the study's quantitative, cross-sectional, descriptive–analytical survey design to examine empirical relationships among Agile Leadership, Employee Engagement, and Workforce Productivity within Saudi Arabia's Ministry of Human Resources and Social Development. The design was deductive because relationships were derived from Job Demands–Resources Theory and Social Exchange Theory and evaluated using questionnaire data. The analysis covers the core mediation model only; exploratory comparisons involving years of service or transformation-program participation are outside scope. Because observations were collected at one point in time and the variables were self-reported, the results are interpreted as empirical relationships and mediation evidence rather than experimental proof of causation.

2.2 Measurement and Instrument Development

Data were collected through a structured electronic questionnaire administered through Google Forms. Agile Leadership was operationalized as a unidimensional construct measured with 12 behavioral items (Q1–Q12) addressing adaptability, flexibility, continuous improvement, decision-making, and responsiveness. Employee Engagement was measured with nine items (E1–E9) adapted from the UWES-9, with three items each representing vigor, dedication, and absorption (Schaufeli et al., 2006). Workforce Productivity was initially represented by 13 items, including reverse-coded counterproductive-work-behavior items P11–P13. Final analysis subsequently reported measurement diagnostics for both the 13-item specification and a refined 10-item retained specification, and this paper preserves that refinement explicitly. All substantive construct items used a five-point Likert response scale from 1 = Strongly Disagree to 5 = Strongly Agree. The paper does not introduce new items, scales, dimensions, or constructs beyond those used in the completed study, ensuring analytical consistency.

2.3 Sampling and Data Collection

The study population comprised employees of the Ministry of Human Resources and Social Development in Saudi Arabia across managerial, supervisory, and non-supervisory positions. A stratified approach represented these organizational levels, followed by convenience selection within strata based on accessibility and willingness to participate. The final dataset contained 390 usable responses. Final analysis reported that all questionnaires passed initial screening, with no incomplete questionnaires or duplicate responses removed. The paper therefore uses the analyzed sample of 390 employees and does not infer a broader national population beyond MHRSD.

2.4 Measurement Scales

All construct measures used five-point Likert categories ranging from Strongly Disagree to Strongly Agree. Agile Leadership was modeled as one latent construct, while Employee Engagement retained the UWES-9 dimensions of vigor, dedication, and absorption. Workforce Productivity included productivity indicators and three reverse-coded counterproductive-behavior items initially. Final analysis evaluated internal consistency, convergent validity, and discriminant validity before structural relationships were interpreted. The paper reports these diagnostics from the completed original study without creating thresholds or recalculating statistics.

2.5 Data Analysis Procedures

The analysis combined SPSS-based preliminary procedures with Partial Least Squares Structural Equation Modeling in SmartPLS, as evidenced in final analysis. Measurement assessment covered internal consistency, convergent validity, and discriminant validity, followed by structural-model assessment using collinearity, coefficient of determination, effect size, and predictive relevance statistics. Hypothesis testing then evaluated the three direct relationships, and mediation analysis assessed the indirect Agile Leadership → Employee Engagement → Workforce Productivity pathway using bootstrapping and confidence intervals. PLS-SEM was retained because it was the analytical framework reported for the measurement and structural models in the completed results, rather than the earlier planned mediation wording in the protocol. Established PLS-SEM guidance was used only to describe the analytical framework, not to recalculate the study's statistics (Hair et al., 2022). All empirical values reported in this paper were transferred from final analysis with model-specific provenance preserved.

2.6 Results

2.7 Measurement model

Final analysis provides the empirical basis for all results reported here. The paper retains evidence for the Agile Leadership, Employee Engagement, and Workforce Productivity model and excludes exploratory analyses. Measurement quality is reported before structural diagnostics and hypothesis testing. Where final analysis presents statistics from different analytical specifications, this paper keeps their provenance separate rather than combining them into a single model. Structural-model diagnostics are reported independently from hypothesis-summary coefficients. The mediation result is reported from the mediation analysis. This sequence preserves the study's findings while avoiding unsupported recalculation, reinterpretation, or selection of statistics for publication convenience.

Table 1 summarizes the internal-consistency and convergent-validity evidence reported for the three study constructs. Agile Leadership showed Cronbach's alpha of .988, omega of .990, average variance extracted of .888, and composite reliability of .990. Employee Engagement likewise demonstrated high reliability, with alpha of .981, omega of .984, average variance extracted of .875, and composite reliability of .984. Workforce Productivity was evaluated in two specifications. The initial 13-item specification produced alpha of .940, omega of .949, average variance extracted of .634, and composite reliability of .949. After measurement refinement, the retained 10-item specification showed alpha of .975, omega of .979, average variance extracted of .821, and composite reliability of .979. These values indicate that the retained constructs were measured consistently and captured substantial shared variance. Reporting both productivity specifications preserves the documented refinement rather than presenting the stronger retained statistics without their preceding measurement context in the completed final measurement assessment.

Table 1: Construct reliability and convergent validity

Construct / specification	Cronbach's alpha	Omega	AVE	Composite reliability
Agile Leadership	.988	.990	.888	.990
Employee Engagement	.981	.984	.875	.984
Workforce Productivity (13 initial items)	.940	.949	.634	.949
Workforce Productivity (10 retained items)	.975	.979	.821	.979

Table 2 reports the heterotrait–monotrait ratios used to assess discriminant validity among Agile Leadership, Employee Engagement, and Workforce Productivity. The ratio between Employee Engagement and Agile Leadership was .742. Workforce Productivity showed a ratio of .691 with Agile Leadership and .773 with Employee Engagement. All three reported values remained below the commonly applied .85 criterion used in the final study interpretation, supporting empirical distinction among the constructs. The highest association was between Workforce Productivity and Employee Engagement, which is consistent with their close position in the proposed motivational pathway but does not indicate that the constructs are interchangeable. The lower ratio between Workforce Productivity and Agile Leadership further supports separation between the predictor and outcome constructs. Together, the matrix indicates that the measurement model distinguished the three variables sufficiently for subsequent structural assessment. No additional correlations, square roots of AVE, or alternative discriminant-validity statistics were newly calculated for this paper.

Table 2: Discriminant validity (HTMT)

Constructs	AL	EE	WP
AL	—		
EE	.742	—	
WP	.691	.773	—

Table 3 consolidates the structural-model diagnostics reported in final analysis without mixing them with the separate hypothesis-summary statistics. Collinearity was acceptable, with VIF = 1.000 for Agile Leadership predicting Employee Engagement and VIF = 2.314 for both predictors of Workforce Productivity. The full structural model explained 55.1% of the variance in Employee Engagement and 68.3% of the variance in Workforce Productivity, corresponding to R^2 values of .551 and .683. Effect-size results were $f^2 = 1.227$ for Agile Leadership $\rightarrow$ Employee Engagement, .184 for Agile Leadership $\rightarrow$ Workforce Productivity, and .367 for Employee Engagement $\rightarrow$ Workforce Productivity. Predictive-relevance values were $Q^2 = .468$ for Employee Engagement and .523 for Workforce Productivity. Considered together, these diagnostics show a model with substantial explained variance, meaningful predictor contributions, and positive predictive relevance for both endogenous constructs. The values are presented strictly as full-model diagnostics and are not substituted for relationship-specific statistics reported elsewhere in final analysis.

Table 3: Full structural-model diagnostics

Diagnostic	Relationship / construct	Value
VIF	AL $\rightarrow$ EE	1.000
VIF	AL $\rightarrow$ WP	2.314
VIF	EE $\rightarrow$ WP	2.314
R^2	Employee Engagement	.551
R^2	Workforce Productivity	.683
f^2	AL $\rightarrow$ EE	1.227
f^2	AL $\rightarrow$ WP	.184

Diagnostic	Relationship / construct	Value
f^2	EE $\rightarrow$ WP	.367
Q^2	Employee Engagement	.468
Q^2	Workforce Productivity	.523

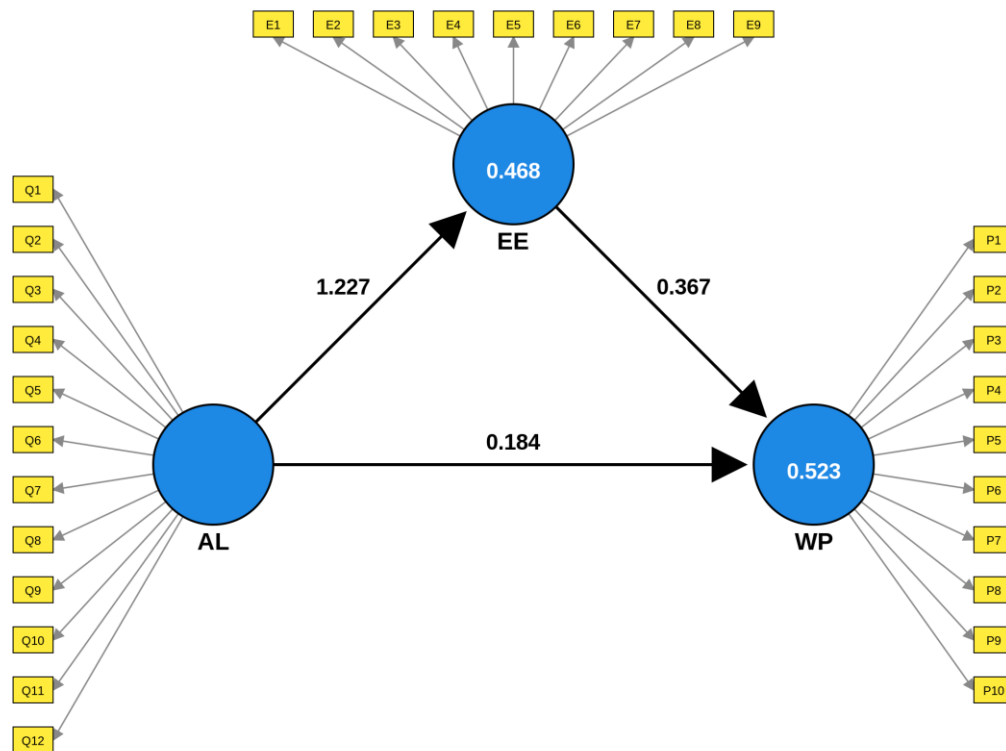


Figure 2: Structural-model effect sizes and predictive relevance

Figure 2 presents the structural model using effect-size (f^2) and predictive-relevance (Q^2) statistics. Agile Leadership shows a very large effect on Employee Engagement ($f^2 = 1.227$), while its effect on Workforce Productivity is $f^2 = .184$ and the effect of Employee Engagement on Workforce Productivity is $f^2 = .367$. The endogenous constructs also show positive predictive relevance, with $Q^2 = .468$ for Employee Engagement and $Q^2 = .523$ for Workforce Productivity. The model further displays the retained measurement indicators for Agile Leadership (Q1–Q12), Employee Engagement (E1–E9), and Workforce Productivity (P1–P10), aligning the visual model with the final measurement specification reported in the study.

Table 4 presents the hypothesis-testing evidence retained for the paper's four core propositions. Agile Leadership was positively related to Workforce Productivity, with $B = .587$, $\beta = .847$, and $p < .001$, supporting H1. Agile Leadership was positively related to Employee Engagement, with $B = .909$, $\beta = .950$, and $p < .001$, supporting H2. Employee Engagement was positively related to Workforce Productivity, with $B = .643$, $\beta = .889$, and $p < .001$, supporting H3. For H4, the dedicated mediation analysis reported an indirect effect of .584, $Z = 11.35$, and a confidence interval from .468 to .663. Final analysis further reported that 96.3% of the total effect was transmitted through Employee Engagement and characterized the pattern as indirect-effect-dominant mediation. All four hypotheses were supported. Relationship-specific R^2 and f^2 values from the hypothesis summary are omitted here because the paper reports full-model diagnostics separately to avoid conflating analytical specifications within the completed final study empirical evidence base.

Table 4: Hypothesis testing and mediation

Hypothesis	Relationship	Evidence	Decision
H1	AL → WP	B = .587; β = .847; $p < .001$	Supported
H2	AL → EE	B = .909; β = .950; $p < .001$	Supported
H3	EE → WP	B = .643; β = .889; $p < .001$	Supported
H4	AL → EE → WP	Indirect = .584; Z = 11.35; 95% CI [.468, .663]; 96.3% mediated	Supported — indirect-effect-dominant

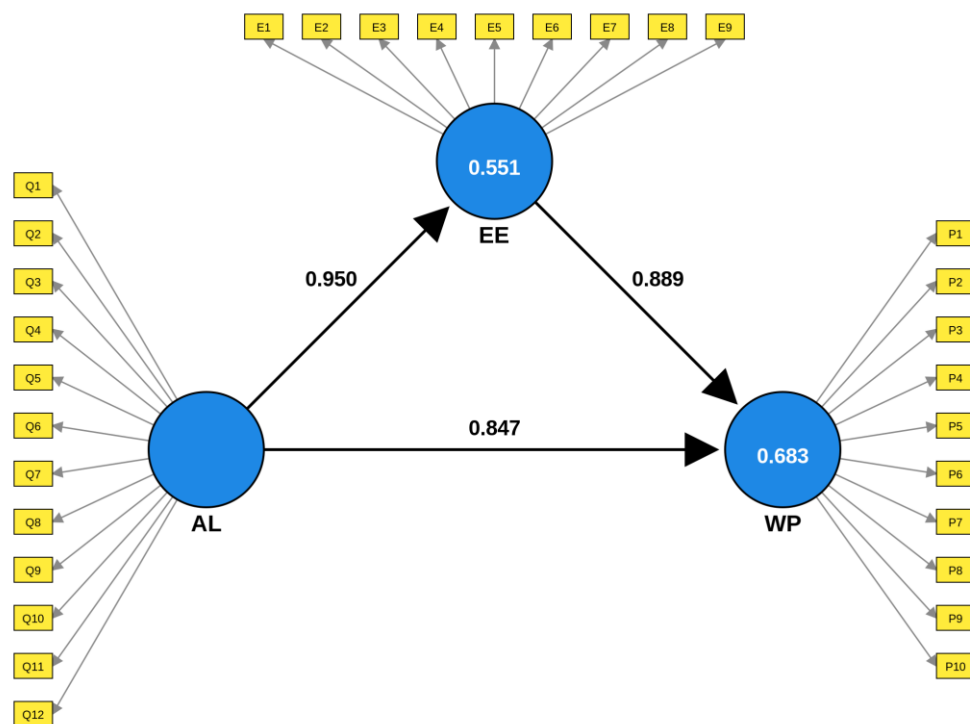


Figure 3: Standardized structural model and explained variance

Figure 3 presents the standardized structural model: $\beta = .950$ (AL → EE), $\beta = .847$ (AL → WP), and $\beta = .889$ (EE → WP), with all three direct paths significant at $p < .001$. $R^2 = .551$ for Employee Engagement and $R^2 = .683$ for Workforce Productivity. The mediation analysis further supports the indirect pathway from Agile Leadership to Workforce Productivity through Employee Engagement. The reported specific indirect effect was .584, with $Z = 11.35$ and a 95% confidence interval of [.468, .663], indicating a statistically supported mediated relationship. The finding that 96.3% of the total effect was transmitted through Employee Engagement highlights the substantive importance of the mediating mechanism. In practical terms, the result suggests that the productivity advantage associated with agile leadership is carried largely through its capacity to strengthen employees' psychological involvement, energy, and commitment to work. Employee Engagement therefore functions as the principal explanatory bridge between leadership behavior and productivity in the tested model. The pattern is best interpreted as indirect-effect-dominant mediation, while the broader model still retains a direct Agile Leadership–Workforce Productivity relationship.

Taken together, the results support the paper's motivational pathway. Agile Leadership was associated with Employee Engagement and Workforce Productivity, while Employee Engagement was associated with Workforce Productivity and carried an indirect effect between leadership and productivity. The measurement evidence indicates that the three constructs remained distinguishable, and the structural diagnostics show positive predictive relevance for both endogenous variables. The mediation result strengthens the interpretation that engagement is an important mechanism within the

tested model. Because the design is cross-sectional and self-reported, these findings establish supported relationships within MHRSD rather than experimental or longitudinal causal effects.

3. Discussion

3.1 Theoretical implications

The findings reinforce the paper's integration of JD-R Theory and Social Exchange Theory. JD-R Theory positions resources as conditions that can foster engagement and performance through a motivational process, which is consistent with the positive Agile Leadership–Engagement and Engagement–Productivity relationships observed here (Bakker & Demerouti, 2024). The substantial mediation evidence is also consistent with meta-analytic findings showing that work engagement helps transmit constructive leadership effects to job performance (Pletzer et al., 2024). SET complements this interpretation by framing supportive leader behavior as an exchange condition that can invite reciprocal employee investment (Cropanzano & Mitchell, 2005). Importantly, the results do not show that direct leadership effects disappear when engagement is considered; instead, final analysis characterizes the pattern as indirect-effect-dominant mediation. The theoretical contribution is therefore bounded: the study supports engagement as a motivational mechanism linking agile leadership with productivity within one Saudi public-sector ministry in practice.

3.2 Managerial implications

The results have practical relevance for MHRSD because the Ministry links public-sector development with stronger human-capital management, digital services, and higher job performance (MHRSD, 2025). The evidence suggests that leadership development should emphasize adaptive decision-making, responsiveness, participation, and employee empowerment rather than treating agility only as procedural speed. Recent digital-transformation research indicates that agile leadership can increase employee participation and morale when leaders involve organizational members in change processes (Rialti & Filieri, 2024). The strong engagement pathway also suggests that leadership initiatives should be paired with practices that help employees experience energy, dedication, involvement, and meaningful contribution. Public-sector evidence indicates that supportive leadership and favorable work conditions can improve performance partly through engagement (Li et al., 2025). Accordingly, managers can use engagement indicators as a workforce-management signal when evaluating leadership initiatives. These implications should remain proportional to the evidence: the study supports relationships within MHRSD, but it does not establish that any single leadership intervention will produce a predetermined productivity gain across Saudi government organizations in operational practice.

3.3 Limitations and future research directions

Several limitations define the findings. The study used a cross-sectional survey, so temporal ordering among Agile Leadership, Employee Engagement, and Workforce Productivity cannot be demonstrated. All three constructs were measured through employee self-reports, which may introduce common-source and response biases despite the preliminary checks reported in final analysis. The sample was drawn from one Saudi public-sector institution, limiting generalization to other ministries, private organizations, or national workforces. The sampling procedure combined stratification by organizational level with convenience selection within strata, which improves coverage of job levels but does not constitute probability sampling. Workforce Productivity also underwent measurement refinement from 13 initial items to 10 retained items. These constraints do not invalidate the observed relationships, but they require cautious interpretation of the magnitude, direction, and transferability of the results beyond the analyzed MHRSD sample.

Future research should test the core model longitudinally so that changes in leadership perceptions, engagement, and productivity can be observed across organizational transformation. Multi-source designs could combine employee perceptions with supervisor ratings or operational performance

indicators to reduce reliance on self-reported outcomes. Replication across Saudi ministries would clarify whether relationships observed in MHRSD extend to public organizations with different mandates, structures, and workforce profiles. Recent public-administration scholarship identifies cross-cultural and longitudinal research as continuing needs in work-engagement research, reinforcing broader replication (Santosa et al., 2025). Future studies could also compare the engagement pathway across organizational levels while keeping the core constructs unchanged. Because recent Agile Leadership research has identified alternative mediating mechanisms, subsequent models may compare Employee Engagement with theoretically justified alternatives rather than assuming one universal pathway (Nikzad & Udin, 2025). Such extensions should be theory-driven and tested with new data; they should not be inferred from the present results. The immediate next step is replication and temporal validation of the established three-construct model across comparable public sector settings.

4. Conclusion

This paper examined whether Agile Leadership is related to Workforce Productivity directly and indirectly through Employee Engagement among employees of Saudi Arabia's Ministry of Human Resources and Social Development. Using the study's quantitative cross-sectional survey of 390 employees, the analysis retained the three-construct model and relied exclusively on final analysis for empirical results. The measurement evidence supported internal consistency, convergent validity, and discriminant validity, while structural diagnostics indicated explained variance and predictive relevance. All three direct hypotheses were supported: Agile Leadership was positively related to Workforce Productivity and Employee Engagement, and Employee Engagement was positively related to Workforce Productivity. The mediation analysis supported H4, with an indirect effect of .584, $Z = 11.35$, and a confidence interval of [.468, .663], while final analysis described 96.3% of the total effect as transmitted through engagement. These findings position Employee Engagement as a substantial mechanism within the leadership–productivity relationship rather than a peripheral employee attitude. For MHRSD, the results support combining agile leadership development with engagement-focused workforce practices when seeking stronger productivity during organizational transformation. The contribution remains bounded because the evidence is cross-sectional, self-reported, and drawn from one ministry. Future longitudinal and multi-source studies across comparable Saudi public organizations can test whether the mechanism remains empirically stable over time and across institutional settings. Overall, the paper preserves the original study's scientific meaning while presenting its central mediation contribution in a journal format.

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