Organizational Culture and Effective AI Initiative Implementation in Saudi Healthcare Administration: The Mediating Role of Change Management

Abdulrahman Mohammed A Alatawi[1*], Akram Abdulsamad Ali Saif[2]

[1]School of Business & Management, Lincoln University College, Malaysia, a.alatawi.a@hotmail.com

[2]School of Business & Management, Lincoln University College, Malaysia, akramak@lincoln.edu.my

[*]Corresponding Author's E-mail: a.alatawi.a@hotmail.com

Abstract: *Artificial intelligence initiatives in healthcare administration require more than technical readiness because their effectiveness depends on institutional conditions that support adoption, coordination, and sustained use. This paper examines the cultural pathway through which organizational culture contributes to effective AI initiative implementation in Saudi healthcare administration, with change management tested as the mediating mechanism. The study uses the empirical results reported in the source analysis, based on 267 usable responses from healthcare administrators. The revised evidence confirms that organizational culture had a significant direct relationship with effective AI initiative implementation (beta = 0.191, t = 2.122, p = 0.001) and a significant relationship with change management (beta = 0.322, t = 3.123, p = 0.002). Change management showed the strongest direct relationship with effective AI initiative implementation (beta = 0.945, t = 13.457, p = 0.000). The indirect effect of organizational culture through change management was also significant (beta = 0.304, t = 2.987, p = 0.003), supporting partial mediation. The findings indicate that culture contributes to AI implementation both directly and through structured change processes. Practically, Saudi healthcare organizations should strengthen innovation-oriented, collaborative, learning-based, and ethically aware cultural conditions while institutionalizing change management practices that translate cultural readiness into implementation effectiveness.*

Keywords: Organizational culture; change management; effective AI implementation; Saudi healthcare administration; PLS-SEM; digital transformation.

1. Introduction

Artificial intelligence has become an important component of healthcare transformation because it can support decision-making, operational efficiency, service improvement, and administrative coordination. In Saudi Arabia, AI implementation is closely aligned with the broader digital transformation agenda and the modernization of healthcare administration under Vision 2030 (Alshahrani et al., 2024). However, the implementation of AI in healthcare organizations cannot be understood as a purely technical process. It requires organizational readiness, managerial coordination, ethical awareness, and human acceptance because AI changes how administrative work is designed, monitored, and evaluated. The present paper therefore focuses on the organizational conditions that enable AI initiatives to move from strategic intention to effective implementation. The adoption of AI in healthcare is particularly complex because digital tools must operate within regulated environments where accountability, data protection, patient-related consequences, and professional responsibility remain central concerns. Healthcare organizations must therefore coordinate workflow redesign, staff preparedness, governance procedures, and ethical safeguards when AI is introduced into administrative and service environments (Chen & Decary, 2020). These requirements make implementation effectiveness dependent on more than the availability of AI

technologies. The internal culture of the organization must support learning, adaptability, participation, and collaboration so that employees interpret AI as an organizational development initiative rather than as a disruptive external pressure.

Organizational culture provides the shared values and behavioral expectations that shape how employees interpret innovation and respond to change. A culture that supports learning, adaptability, collaboration, and digital awareness is more likely to create the readiness needed for AI-enabled transformation (Palumbo & Douglas, 2024). In healthcare administration, this cultural foundation is especially important because administrators are responsible for translating strategic initiatives into everyday processes. If employees perceive AI implementation as consistent with organizational values and strategic goals, they are more likely to participate constructively in training, workflow redesign, and implementation monitoring. Nevertheless, cultural readiness does not automatically become implementation effectiveness. Change management provides the structured processes through which cultural support is translated into communication, training, stakeholder engagement, resistance management, and continuous improvement. This distinction is important because an organization may express positive values toward innovation while still failing to implement AI effectively if those values are not supported by disciplined execution routines. Accordingly, this paper examines whether change management mediates the relationship between organizational culture and effective AI initiative implementation. The contribution of the paper is to clarify how culture directly supports AI implementation and how change management operationalizes cultural readiness into implementation outcomes within Saudi healthcare administration.

2. Literature Review and Hypotheses Development

2.1 Effective AI Initiative Implementation in Healthcare Administration

Effective AI initiative implementation refers to the successful integration and use of AI technologies in healthcare administrative systems to support better decision-making, workflow improvement, and service performance. In administrative settings, implementation effectiveness involves more than acquiring AI tools; it includes aligning AI systems with organizational objectives, embedding them into workflows, monitoring their use, and ensuring that employees have the capability to use them responsibly. AI implementation in healthcare therefore requires responsible governance, operational integration, and alignment with institutional objectives (Reddy et al., 2020). The healthcare context increases the complexity of AI implementation because digital technologies must be introduced into systems shaped by regulation, service quality expectations, professional accountability, and organizational hierarchy. This complexity means that AI adoption becomes an implementation challenge rather than a simple technology-installation task (Shaw et al., 2019). In Saudi healthcare administration, the success of AI initiatives depends on whether organizations can connect national transformation priorities to internal readiness, leadership support, process redesign, and employee engagement. For this reason, the present paper treats effective AI implementation as an organizational outcome influenced by cultural and change-management conditions.

2.2 Organizational Culture as a Cultural Readiness Foundation

Organizational culture consists of the shared values, beliefs, and norms that guide behavior within an organization. These shared assumptions shape how employees understand change, respond to innovation, and participate in new forms of administrative practice (Driskill, 2018). In the context of AI implementation, culture matters because it influences whether employees perceive AI as a threat, a tool for improvement, or a strategic opportunity. A supportive culture can enhance implementation by encouraging learning, collaboration, and openness to experimentation, particularly when AI initiatives require employees to adjust established routines and accept data-supported decision-making. Culture also affects readiness for change by shaping whether employees perceive transformation as legitimate, useful, and aligned with institutional values. Prior research on culture and quality-oriented change suggests that cultural support can improve employee readiness and the implementation of structured improvement initiatives (Haffar et al., 2019). The present paper

therefore expects organizational culture to be positively associated with effective AI initiative implementation. This expectation is grounded in the idea that innovation-oriented and learning-based cultural conditions provide the social foundation for adopting AI within healthcare administration.

2.3 Change Management as a Mediating Mechanism

Change management refers to the structured approach used to guide organizations from current practices toward desired future practices. In digital transformation, change management helps convert strategic intent into coordinated operational action (Bellantuono et al., 2021). AI implementation requires change management because it introduces new processes, skills, roles, expectations, and forms of accountability into healthcare administration. Structured change practices help organizations communicate objectives, prepare staff, reduce resistance, involve stakeholders, and monitor implementation progress. In this way, change management becomes the practical mechanism through which readiness is transformed into action. Change management also provides an operational bridge between cultural readiness and implementation effectiveness. Culture may encourage openness to AI, but change management institutionalizes that openness through training, communication, workflow redesign, and continuous improvement mechanisms. This mediating logic is consistent with digital transformation research, which argues that transformation succeeds when values, capabilities, and execution routines are aligned (Omol, 2024). The present paper therefore treats change management not only as a direct predictor of implementation effectiveness but also as the pathway through which organizational culture becomes actionable implementation capacity.

2.4 Conceptual Framework and Hypotheses

The focused conceptual framework for this paper includes organizational culture as the independent variable, change management as the mediating variable, and effective AI initiative implementation as the dependent variable. The framework is derived from the broader empirical model but is limited to the cultural pathway required for this paper. Organizational culture is expected to influence AI implementation directly because shared values and innovation-supportive norms can strengthen readiness for digital transformation. It is also expected to influence change management because cultures that support collaboration, adaptability, and learning are more likely to enable structured transition processes. Change management is expected to influence effective AI implementation because it translates readiness into coordinated execution.

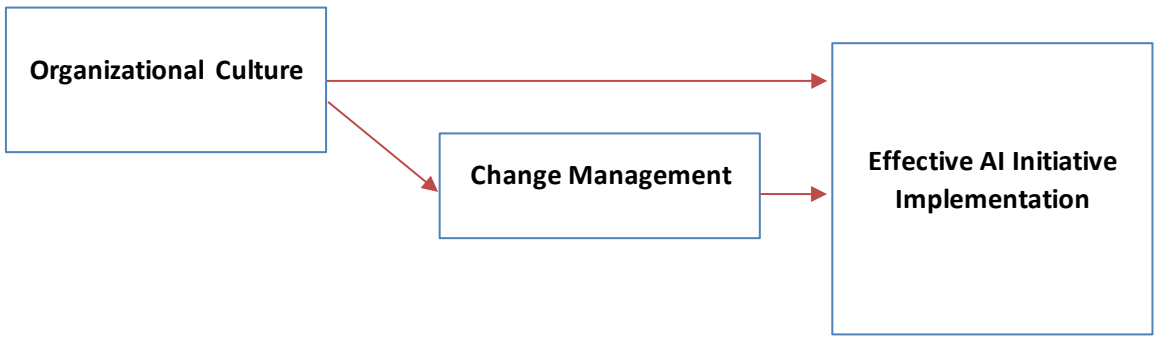

Figure 1 : Conceptual framework

3. Methodology

3.1 Research Design and Context

The study used a quantitative, deductive survey design to test hypothesized relationships among latent constructs in Saudi healthcare administration. This design was appropriate because the research objective required statistical assessment of relationships among measured variables rather than exploratory qualitative interpretation. The paper reports a focused analysis from the broader empirical

model while retaining only the constructs required for the selected cultural pathway. The research context was healthcare administration, where administrators are positioned within the systems that shape AI-related coordination, policy execution, workflow redesign, and implementation monitoring.

3.2 Data Collection and Sample

The empirical data were collected through a structured questionnaire administered to healthcare administrators. The study reported 300 distributed questionnaires, 267 returned questionnaires, no incomplete responses, and 267 usable responses, producing a usable response rate of 89.00%. These values are reproduced from the source results chapter and are used consistently throughout this paper. The final dataset was therefore sufficient for the PLS-SEM analysis reported in the results section, particularly because the analysis relies on latent-variable relationships and bootstrapped significance testing.

3.3 Measurement of Constructs

The constructs measured for this focused paper were organizational culture, change management, and effective AI initiative implementation. Organizational culture was represented by items capturing innovation-supportive values, adaptability, collaboration, AI awareness, continuous learning, and ethical emphasis. Change management was represented by items capturing structured transition practices, preparation, training, communication, resistance management, stakeholder involvement, and continuous improvement. Effective AI initiative implementation was represented by items capturing AI workflow integration, operational efficiency, monitoring, decision support, strategic alignment, training support, resource optimization, and performance metrics. Measurement quality was evaluated through internal consistency reliability, composite reliability, convergent validity, and item loading assessment. The refined measurement model retained the indicators reported in the source measurement-model results.

3.4 Data Analysis Procedure

The analysis included preliminary screening, descriptive statistics, reliability analysis, correlation assessment, measurement-model evaluation, structural-model assessment, and mediation analysis. The empirical model was assessed using PLS-SEM with bootstrapping for the significance of path coefficients and indirect effects. Bootstrapping was appropriate because it estimates standard errors, t-values, and p-values without requiring strict normality of the data (Hair et al., 2020). The results reported in this paper are restricted to the organizational culture, change management, and effective AI initiative implementation pathway, while model-level indicators are interpreted as context from the full source structural model.

4. Results

4.1 Response Profile

The empirical dataset consisted of 267 usable responses from 300 distributed questionnaires. The usable response rate of 89.00% indicates that the final dataset was adequate for the focused analysis reported in this paper.

Table 1 : Response Rate and Usable Sample

Questionnaire	Frequency	Percentage
Total distributed	300	100
Returned responses	267	89.00%
Unreturned	33	11.00%
Incomplete responses	0	0.00%
Usable responses	267	89.00%

Table 1 confirms that the study achieved a strong usable response profile because 267 of the 300 distributed questionnaires were returned and retained for analysis. The absence of incomplete responses is methodologically important because it indicates that no cases were lost during data screening and that the empirical analysis was conducted on the full returned dataset. The 89.00% usable response rate strengthens confidence in the stability of the statistical results because the sample was not substantially reduced by non-response or missing data. For the theoretical model, this matters because relationships among organizational culture, change management, and AI implementation can be interpreted from a sufficiently complete empirical base. The response pattern also supports the credibility of later measurement and structural tests, since all reported reliability, correlation, path, mediation, R-square, Q2predict, and model-fit indicators are based on the same 267 usable observations rather than on inconsistent subsamples. The respondent profile indicates a balanced distribution across gender, age, education, experience, and organization type. The sample therefore provides a heterogeneous administrative profile within the healthcare context used for the analysis.

Table 2 shows that the respondent profile was sufficiently diverse for interpreting perceptions of AI implementation in healthcare administration. Gender representation was balanced, with 136 male respondents and 131 female respondents, reducing the risk that the findings reflect one gender group disproportionately. The age distribution also covered early-career, mid-career, and senior groups, with the largest category being 46-50 years at 15.7% and other categories ranging from 13.1% to 15.4%. Educationally, the sample included Diploma, Bachelor's, Master, PhD, and High School qualifications, which supports variation in administrative and professional perspectives. Experience was similarly distributed, with the largest group having more than 20 years of experience at 22.1%. Organizational type was also heterogeneous, including private, public healthcare, research/academia, service provider, technology provider, and other organizations. This demographic breadth strengthens the interpretation of the theoretical model because cultural readiness and change management perceptions were drawn from a varied administrative population rather than a narrow respondent segment.

Table 2 : Respondent Profile

Variable	Category	Frequency	Percent (%)
Gender	Male	136	50.9
	Female	131	49.1
Age	18–24	41	15.4
	25–30	35	13.1
	31–35	38	14.2
	36–40	37	13.9
	41–45	37	13.9
	46–50	42	15.7
	>50	37	13.9
Education	PhD	50	18.7
	Master	53	19.9
	Bachelor’s	43	16.1
	Diploma	68	25.5
	High School	53	19.9
Experience	1–5 years	53	19.9
	5–10 years	53	19.9
	11–15 years	51	19.1
	16–20 years	51	19.1
	>20 years	59	22.1
Organization Type	Private	42	15.7
	Public Healthcare	48	18
	Research / Academia	42	15.7
	Healthcare Service Provider	41	15.4
	Technology Provider	49	18.4
	Other	45	16.9

4.2 Measurement Model for the Focused Constructs

The measurement evidence for the focused paper constructs showed strong internal consistency and convergent validity. The retained indicators and reliability values for organizational culture, change management, and effective AI initiative implementation all exceeded accepted measurement thresholds reported in the source analysis. Table 3 demonstrates that the focused constructs met strong measurement-quality expectations after model refinement. Organizational culture retained 18 indicators with loadings ranging from 0.591 to 0.890, Cronbach's alpha of 0.971, composite reliability of 0.973, and AVE of 0.678. Change management retained 20 indicators with loadings ranging from 0.674 to 0.839, alpha of 0.964, composite reliability of 0.965, and AVE of 0.596. Effective AI initiative implementation retained 7 indicators with loadings ranging from 0.767 to 0.851, alpha of 0.921, composite reliability of 0.922, and AVE of 0.679. These results indicate that the constructs were measured with high internal consistency and adequate convergent validity. The theoretical implication is that the cultural, change-management, and implementation constructs are empirically distinguishable enough to support the proposed mediation logic, while still capturing coherent dimensions of AI transformation in healthcare administration.

Table 3 : Final Measurement Properties of the Focused Constructs

Construct	Retained indicators	Loading range	Cronbach's alpha	Composite reliability	AVE
Organizational Culture	18	0.591-0.890	0.971	0.973	0.678
Change Management	20	0.674-0.839	0.964	0.965	0.596
Effective AI Initiative Implementation	7	0.767-0.851	0.921	0.922	0.679

Figure 2 illustrates the initial measurement model and confirms that the focused constructs demonstrate strong empirical reliability before structural interpretation. Organizational culture records very high internal consistency, with most indicators loading strongly on the construct, although a few lower loadings suggest why careful refinement was necessary. Change management also appears statistically robust, with a reliability value of 0.964 and consistently acceptable indicator loadings, supporting its role as a well-defined mediating construct. Effective AI initiative implementation shows reliable measurement after retaining the strongest indicators, with loadings clustered within an acceptable range. Theoretically, the figure strengthens the study by showing that organizational culture, change management, and AI implementation are not treated as abstract concepts, but as measurable latent variables capable of supporting the proposed mediation logic.

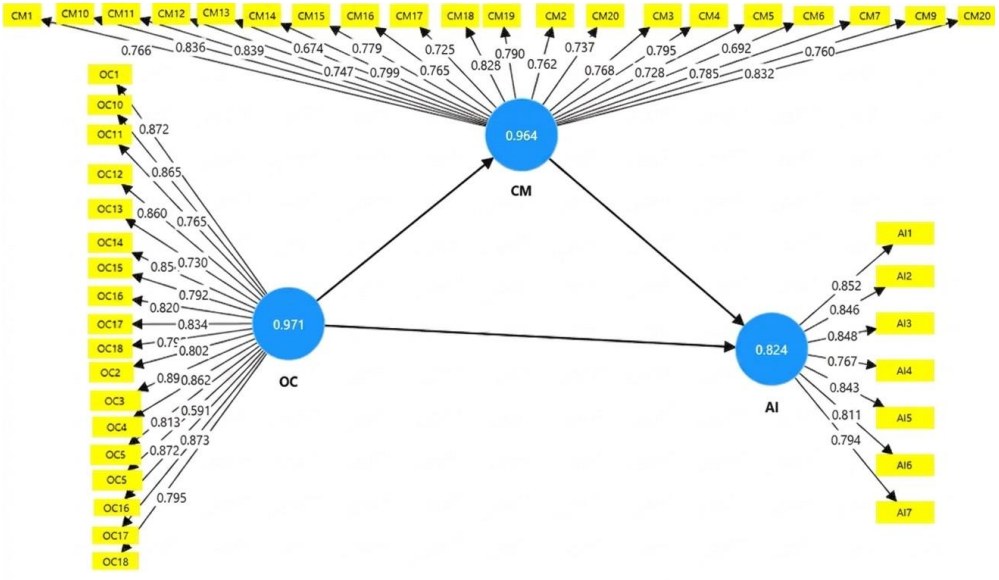

Figure 2 : Evaluation of Measurement Model (Initial Model)

4.3 Descriptive Statistics and Correlations

The descriptive statistics show high mean scores for organizational culture, change management, and effective AI initiative implementation. The correlations among the three constructs were positive and statistically significant at the 0.01 level, supporting the conceptual logic of the focused mediation model. Table 4 indicates that respondents reported generally favorable perceptions of all three focused constructs. Organizational culture recorded a mean of 4.177 with a standard deviation of 0.732, while change management recorded a mean of 4.056 with a standard deviation of 0.718, and effective AI initiative implementation recorded a mean of 4.053 with a standard deviation of 0.543. These values suggest that the organizational environment, change processes, and AI implementation outcomes were perceived positively. The correlation pattern further supports the proposed theoretical relationships. Organizational culture was positively associated with change management at .621 and with effective AI initiative implementation at .602, while change management showed the strongest bivariate association with effective AI initiative implementation at .745. Theoretically, this pattern supports the mediation argument because organizational culture is connected to both the mediator and the outcome, and the mediator is strongly connected to implementation effectiveness.

Table 4 : Descriptive Statistics and Correlations

Variable	N	Mean	Std. Deviation	OC	CM	AI
Organizational Culture	267	4.177	0.732	1		
Change Management	267	4.056	0.718	.621**	1	
Effective AI Initiative Implementation	267	4.053	0.543	.602**	.745**	1

Correlation is significant at the 0.01 level (2-tailed). Only constructs relevant to this paper are shown.

Figure 3 demonstrates that the model has meaningful predictive relevance for the endogenous constructs, with change management recording a Q^2 value of 0.429 and effective AI initiative implementation recording a stronger Q^2 value of 0.515. These positive values indicate that the model is not only statistically reliable but also capable of predicting key outcomes within the focused mediation pathway. Organizational culture appears as the exogenous construct with a value of 0.000, which is expected because it functions as the starting predictor rather than the predicted outcome. Theoretically, the figure strengthens the argument that organizational culture gains explanatory value when it operates through change management, while change management becomes a central mechanism for translating cultural readiness into effective AI implementation outcomes.

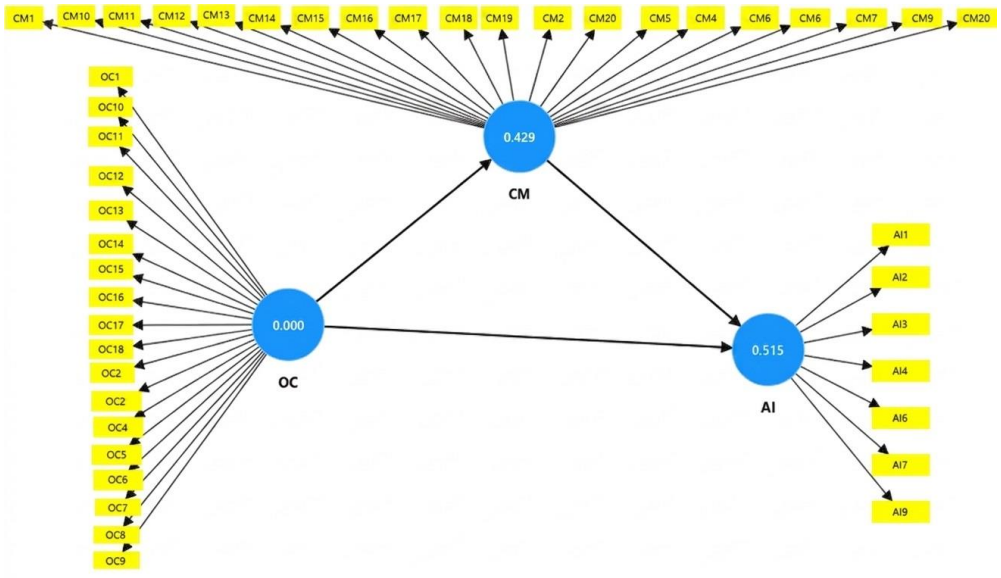

Figure 3 : The Predictive Relevance Model (Q2) (Construct Cross-Validated Redundancy).

Figure 4 presents the Construct Cross-Validated Communality results and shows that the measurement model has clear empirical quality across all three focused constructs. Organizational culture records the strongest communality value at 0.636, indicating that its retained indicators

explain the construct with substantial consistency. Effective AI initiative implementation also shows solid measurement relevance at 0.568, while change management records a positive and acceptable value of 0.548. These results support the argument that the constructs are not weak or loosely measured dimensions, but reliable theoretical components within the model. Theoretically, this strengthens the mediation logic because organizational culture, change management, and AI implementation are each represented by indicators that meaningfully capture their conceptual domains, allowing the structural relationships to be interpreted with greater confidence.

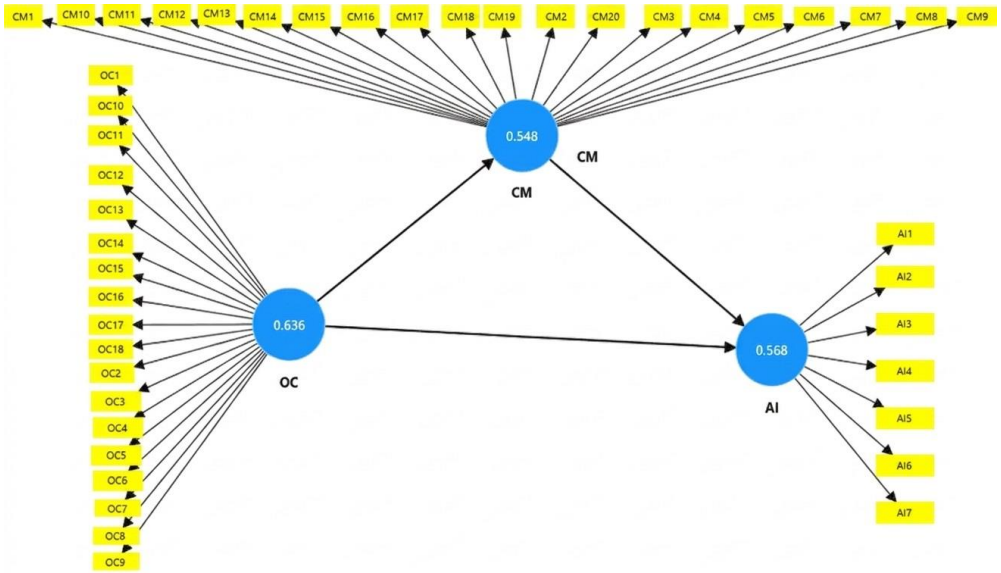

Figure 4 : The Predictive Relevance Model (Q2) (Construct Cross-Validated Communality).

4.4 Direct Structural Effects

The direct structural paths supporting this paper were statistically significant. Organizational culture was positively related to effective AI initiative implementation and positively related to change management, while change management was strongly related to effective AI initiative implementation. Table 5 provides the central direct-effect evidence for the focused model. Organizational culture had a significant positive direct effect on effective AI initiative implementation, with beta = 0.191, t = 2.122, and p = 0.001, indicating that culture contributes directly to implementation outcomes. Organizational culture also had a significant positive effect on change management, with beta = 0.322, t = 3.123, p = 0.002, and f-square = 0.071, showing that cultural readiness supports structured transition practices. The strongest path was from change management to effective AI initiative implementation, with beta = 0.945, t = 13.457, p = 0.000, and f-square = 0.991. The theoretical implication is that culture matters, but its practical influence is most powerful when translated into change-management routines. The f-square of 0.000 for the direct OC -> AI path also suggests that culture's unique direct contribution is limited once the structural model accounts for the change-management pathway.

Table 5 : Direct Structural Path Results

Path	Beta	Sample Mean (M)	SD	T statistics	P values	f-square	Decision
OC -> AI	0.191	0.006	0.090	2.122	0.001	0.000	Supported
OC -> CM	0.322	0.319	0.103	3.123	0.002	0.071	Supported
CM -> AI	0.945	0.946	0.070	13.457	0.000	0.991	Supported

OC = Organizational Culture; CM = Change Management; AI = Effective AI Initiative Implementation.

4.5 Mediation and Model-Level Evidence

The indirect path from organizational culture to effective AI initiative implementation through change management was positive and statistically significant. Because the direct path remained significant, the evidence supports partial mediation rather than full mediation. The model-level indicators are reported as context from the full source structural model rather than as a separate OC-only model. Table 6 confirms that the indirect effect of organizational culture on effective AI initiative implementation through change management was statistically significant, with beta = 0.304, sample mean = 0.302, SD = 0.102, t = 2.987, and p = 0.003. This result supports the mediation hypothesis and indicates that change management is a meaningful transmission mechanism through which cultural readiness becomes implementation effectiveness. The model-level values also provide useful structural context: AI recorded R-square = 0.768 and adjusted R-square = 0.766, while change management recorded R-square = 0.743 and adjusted R-square = 0.741. Predictive relevance was positive for AI at Q2predict = 0.524 and for change management at Q2predict = 0.736. The SRMR value was 0.067 for both the saturated and estimated models, indicating acceptable model fit. Theoretically, these results strengthen the argument that AI implementation depends on an integrated system of cultural readiness and structured change execution.

Table 6 : Mediation and Structural Model Context

Indicator	Value/Beta	Sample Mean (M)	SD	T statistics	P values	Decision/Interpretation
OC -> CM -> AI	0.304	0.302	0.102	2.987	0.003	Supported
R-square: AI	0.768					Context
R-square adjusted: AI	0.766					Context
R-square: CM	0.743					Context
R-square adjusted: CM	0.741					Context
Q2predict: AI	0.524					Context
Q2predict: CM	0.736					Context
SRMR: Saturated / Estimated model	0.067 / 0.067					Acceptable fit indicator

OC = Organizational Culture; CM = Change Management; AI = Effective AI Initiative Implementation.

Figure 5 demonstrates the mediation logic of the focused structural model by showing that organizational culture contributes to effective AI initiative implementation both directly and indirectly through change management. The direct path from organizational culture to AI implementation is positive and statistically significant, indicating that cultural readiness has its own explanatory role in shaping implementation effectiveness. However, the stronger path from change management to AI implementation shows that structured transition practices are the dominant mechanism through which implementation outcomes are strengthened. The substantial explanatory values for change management and AI implementation further confirm that the model has strong statistical support. Theoretically, this finding means that organizational culture becomes most influential when it is translated into organized communication, training, participation, and resistance-management processes.

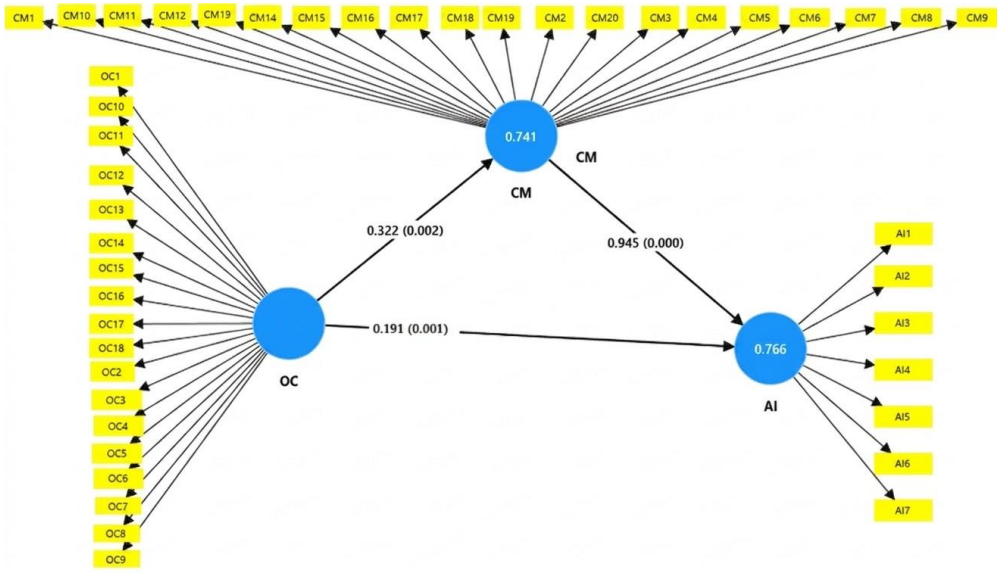

Figure 5 : Path Model Results of Mediation

5. Discussion

5.1 Theoretical Implications

The findings support the argument that organizational culture is a meaningful antecedent of effective AI initiative implementation in Saudi healthcare administration. The significant direct path from organizational culture to effective AI initiative implementation indicates that cultural attributes such as adaptability, shared values, collaboration, and learning orientation contribute to AI outcomes. This finding is theoretically important because it positions culture as more than an organizational background variable. It suggests that shared cultural conditions can shape how employees and administrators interpret AI initiatives, participate in implementation activities, and accept changes to administrative routines. In this sense, organizational culture contributes to implementation readiness by creating a social environment in which AI adoption is perceived as legitimate, useful, and aligned with institutional development. The significant relationship between organizational culture and change management strengthens the theoretical argument that culture functions as a readiness foundation for structured transformation. A culture that supports learning and adaptability appears more likely to support communication, training, stakeholder engagement, and resistance-management practices. This finding is consistent with the view that shared values shape employee acceptance of new practices and support the institutionalization of change mechanisms (Haffar et al., 2019). For the present study, the result means that change management should not be interpreted as a purely procedural activity. It is also culturally conditioned because the effectiveness of transition processes depends partly on whether organizational norms encourage participation, trust, and openness to AI-related change.

The strong relationship between change management and effective AI initiative implementation indicates that implementation effectiveness depends heavily on structured transition processes. This result supports the idea that AI success depends on managing the implementation challenge rather than focusing only on technical capability (Shaw et al., 2019). The magnitude of the change-management path suggests that AI implementation in healthcare administration requires disciplined execution, not only positive attitudes toward innovation. Structured communication, role-specific preparation, gradual workflow adaptation, monitoring, and feedback mechanisms appear to be central to transforming AI initiatives into operational outcomes. The result therefore strengthens implementation-oriented theory by showing that change management is a core capability through which healthcare organizations convert digital transformation goals into practical administrative performance. The mediation result provides the central theoretical contribution of this paper. Organizational culture affects AI implementation directly, but its influence is also strengthened when cultural readiness is translated through change management practices. The evidence supports partial

mediation because both the direct and indirect effects were statistically significant. This means that culture is not only a background condition; it also becomes more powerful when supported by structured processes that help employees understand, accept, and integrate AI into work routines. The partial mediation pattern is theoretically useful because it avoids an overly simple explanation in which culture alone determines implementation success. Instead, it shows that culture and change management work together: culture supplies readiness and meaning, while change management supplies execution, coordination, and continuity.

5.2 Practical Implications

For Saudi healthcare administrators, the results suggest that AI implementation should begin with cultural readiness as well as technical planning. Institutions should develop cultures that reward learning, encourage collaboration, and normalize responsible experimentation with AI-enabled administrative tools. Cultural development should not be limited to broad statements about innovation. It should be reflected in everyday managerial practices, such as encouraging staff to participate in AI-related decisions, supporting knowledge sharing, and linking AI initiatives to institutional goals. These practices can help administrators reduce uncertainty and build confidence among employees who must adjust to new workflows, data practices, and performance expectations. Healthcare organizations should also convert cultural readiness into operational routines through formal change management. Practical actions include communication plans, role-specific training, stakeholder involvement, feedback systems, and implementation monitoring. The negligible f-square value for the direct organizational culture path indicates that culture alone may have limited unique explanatory power when change management is included in the structural model. This reinforces the practical need to transform cultural values into structured implementation mechanisms. Administrators should therefore treat change management as the operational arm of cultural readiness. Without this translation, positive cultural perceptions may remain symbolic and may not produce strong implementation outcomes.

The high beta value for change management suggests that administrators should treat change management as a central implementation capability. AI projects are more likely to become effective when cultural support is accompanied by planned transition processes, continuous training, employee engagement, and careful monitoring. In healthcare administration, this is especially important because AI initiatives affect administrative accountability, service efficiency, workflow design, and data-informed decision-making. Practical implementation plans should therefore include defined responsibilities, timelines, communication channels, resistance-management strategies, and evaluation indicators. These mechanisms can help ensure that AI adoption becomes an embedded organizational practice rather than a temporary technological project.

5.3 Limitations and Future Research

The paper is limited by the cross-sectional survey design, which restricts causal inference. Although the PLS-SEM results support significant relationships, longitudinal research would be useful to examine how cultural readiness and change management influence AI implementation over time. The study also relied on self-reported questionnaire data from healthcare administrators, which may introduce response bias. Future research could combine survey data with interviews, administrative performance indicators, or implementation records to strengthen evidence on actual AI implementation outcomes. In addition, future studies could test the same cultural mediation pathway across other healthcare contexts, private healthcare organizations, or comparative national settings to examine whether the mediation pattern remains stable across institutional environments. Future research may also examine whether specific cultural dimensions such as learning orientation, innovation climate, ethical awareness, or interdepartmental collaboration have different effects on AI implementation. Such work could provide a more granular explanation of how culture influences change management and implementation effectiveness. Researchers could also test alternative mediators or moderators, such as digital competence, leadership commitment, organizational

readiness, or governance maturity. These extensions would help determine whether change management is the strongest mechanism in all contexts or whether its role varies according to organizational maturity, employee capability, or strategic alignment. Such evidence would further refine the theoretical explanation of AI implementation in healthcare administration.

6. Conclusion

This paper examined the relationship between organizational culture and effective AI initiative implementation in Saudi healthcare administration, with change management tested as the mediating mechanism. The results showed that organizational culture was significantly related to effective AI implementation and to change management, while change management showed the strongest relationship with implementation effectiveness. The mediation analysis further confirmed that change management significantly transmitted part of the effect of organizational culture to effective AI initiative implementation. The overall conclusion is that cultural readiness matters, but its contribution becomes more effective when translated into structured change management. Saudi healthcare organizations seeking successful AI implementation should therefore develop supportive cultural conditions while also institutionalizing communication, training, engagement, and monitoring processes that turn readiness into sustained implementation outcomes.

References

Alshahrani, S., Al Issa, H., & Omar, A. (2024). The role of AI in healthcare transformation under Vision 2030: Challenges and opportunities. International Journal of Healthcare Innovation, 10(2), 67-81.

Andrade, G., & Gonçalo, M. (2021). Change management strategies in healthcare: Leveraging digital transformation. Healthcare Management Review, 18(4), 245-260.

Bellantuono, N., Nuzzi, A., Pontrandolfo, P., & Scozzi, B. (2021). Digital transformation models for the I4.0 transition: Lessons from the change management literature. Sustainability, 13(23), 12941.

Chen, M., & Decary, M. (2020). Artificial intelligence in healthcare: An essential guide for health leaders. Healthcare Management Forum, 33(1), 10-18.

Creswell, J. W., & Creswell, J. D. (2018). Research design: Qualitative, quantitative, and mixed methods approaches (5th ed.). Sage Publications.

Driskill, G. (2018). Organizational culture in action: A cultural analysis workbook. Routledge.

Gerke, S., Minssen, T., & Cohen, G. (2020). Ethical and legal challenges of artificial intelligence-driven healthcare. In Artificial intelligence in healthcare (pp. 295-336). Academic Press.

Haffar, M., Al-Karaghouli, W., Djebarni, R., & Gbadamosi, G. (2019). Organisational culture and TQM implementation: Investigating the mediating influences of multidimensional employee readiness for change. Total Quality Management & Business Excellence, 30(11-12), 1367-1388.

Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2020). Multivariate data analysis (8th ed.). Pearson.

Harrison, R., Fischer, S., Walpola, R. L., Chauhan, A., Babalola, T., Mears, S., & Le-Dao, H. (2021). Where do models for change management, improvement and implementation meet? A systematic review of the applications of change management models in healthcare. Journal of Healthcare Leadership, 13, 85-108.

Ministry of Health. (2023). Statistical Yearbook 2023. Ministry of Health, Kingdom of Saudi Arabia.

Omol, E. J. (2024). Organizational digital transformation: From evolution to future trends. Digital Transformation and Society, 3(3), 240-256.

Palumbo, R., & Douglas, A. (2024). The secret ingredient? Uncovering the effect of organizational culture on quality management: A literature review. International Journal of Quality & Reliability Management, 41(1), 195-268.

Petersson, L., Larsson, I., Nygren, J. M., Nilsen, P., Neher, M., Reed, J. E., & Svedberg, P. (2022). Challenges to implementing artificial intelligence in healthcare: A qualitative interview study with healthcare leaders in Sweden. BMC Health Services Research, 22, 850.

Reddy, S., Allan, S., Coghlan, S., & Cooper, P. (2020). A governance model for the application of AI in health care. Journal of the American Medical Informatics Association, 27(3), 491-497.

Shaw, J., Rudzicz, F., Jamieson, T., & Goldfarb, A. (2019). Artificial intelligence and the implementation challenge. Journal of Medical Internet Research, 21(7), e13659.