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Assessing the Influence of Organizational Culture and Leadership on the Effectiveness of Enterprise Architecture in Digital Transformation

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Abstract - **Enterprise Architecture (EA) is a key enabler of digital transformation when IT capabilities are aligned with business strategies. Its efficacy, however, does not rely on technical frameworks alone, but it is determined as well by organizational culture and leadership. This research explores how organizational culture and leadership can shape the success of EA in the digital transformation. By combining the Strategic Alignment Model (SAM) and Sociotechnical Systems Theory, this research examines how cultural values, leadership patterns, and organizational behaviors affect EA implementation. In a mixed-method study involving qualitative interviews and quantitative surveys, 450 IT industry professionals were sampled and provided valid responses to 400 questions. Through regression analysis, organizational culture has a significant influence on the adoption and integration of EA (R2 = 0.9269), and leadership is the factor that perfectly correlates with digital transformation strategies (R2 = 1). The results highlight that organizations with a high innovation and leadership culture devoted to transformation achieve superior alignment of IT and business objectives, resulting in successful digital transformation outcomes. The conclusion of this research provides recommendations applicable in creating a favorable organizational culture and climate of leadership to ensure the effectiveness of EA in creating digital change.**

Keywords: **Enterprise Architecture, Digital Transformation, Organizational Culture, Leadership, Strategic Alignment Model, Sociotechnical Systems Theory, Mixed Methods**

I. INTRODUCTION

Enterprise Architecture (EA) is becoming a critical factor in achieving this, as organizations in the rapidly changing business environment are increasingly going digital to stay competitive, efficient, and responsive to market changes (Alghamdi, 2024; Prajogi et al., 2025). EA offers a framework for structuring the partnership between IT systems and business goals, but its performance also does not depend solely on technical solutions; organizational culture and leadership also play a leading role (Tuyen et al., 2025; Hasan et al., 2025). An innovative, flexible, and team-building culture can help personnel interact with technology, work across departments, and be receptive to change, thereby enabling the successful incorporation of EA into business processes (Leso et al., 2023). Leadership is equally crucial, providing strategic orientation and decision-making that ensure EA initiatives align with the broader business purpose. Leaders who consider EA a priority, demonstrate effective communication, and reinforce cultural change initiatives are more likely to achieve successful results in their efforts to transform digitally (Mutonyi et al., 2022). This research will examine the roles of organizational culture and leadership in the success of EA in digital transformation. The study will focus on the enablers and challenges that influence EA deployment and optimization by analyzing key cultural attributes, including innovation orientation, collaboration and adaptability, leadership styles, and decision-making. It is set up to provide meaningful guidance on how organizations can leverage culture and leadership to maximize the success of EA initiatives and drive significant digital transformation (Nadkar et al., 2023).

Overview of Organizational Culture and Leadership on the Effectiveness of Enterprise Architecture in Digital Transformation

The success of Enterprise Architecture (EA) projects, especially those in digital transformation, largely depends on organizational culture and leadership. EA is a systematic approach to integrating business and IT strategies that enables organizations to streamline business processes and optimize resource use to achieve their strategic goals (Shiferaw et al., 2023). Nevertheless, the effective implementation and realization of EA depend not only on the technical competence of its implementation but also on the underlying organizational culture and the leadership approaches used to drive change (Kassim et al., 2018; Zheng et al., 2019). Organizational Culture refers to the shared thinking, values, and behaviors that determine the way employees in an organization work and embrace change. In the digital transformation, it is paramount that the culture promotes innovation, collaboration, and adaptability to enable effective EA execution (Murudi & Khoza, 2025). The

more culturally adaptable and focused on learning an organization is, the more likely it is to adopt EA as a mechanism for change. In addition, cultural qualities such as open communication, trust, and shared vision are important enablers of cross-functional collaboration, which is critical to the successful implementation of EA.

The role of leadership in shaping the culture of EA initiatives and their strategic direction is significant. Leaders can play a critical role in defining the vision, aligning business and IT objectives, and making critical decisions, which will drive the implementation and optimization of EA (Bindel Sibassaha et al., 2025). To develop an EA culture of support by advocating the importance of EA, providing the required resources, and fostering a supportive climate that promotes innovation and experimentation (Piłat, 2024). Leadership can also facilitate resistance to change by managing concerns, conveying the benefits of EA, and ensuring that the organization's leadership style aligns with the digital transformation goals. Transformational leadership, or the emphasis on motivating and inspiring employees, can increase employees' interest in EA initiatives and make them more willing to adopt them. Collectively, organizational culture and leadership determine EA success in digital transformation by creating the setting in which it is carried out. A solid organizational culture that encourages innovation and collaboration, and strong leadership that provides clear direction and strategic focus, can greatly improve the effectiveness of EA. As more organizations rely on EA to guide their digital transformation initiatives, the interaction among culture, leadership, and EA success becomes essential to long-term success.

Problem Statement

Enterprise Architecture (EA) plays a pivotal role in aligning IT capabilities with business strategies during digital transformation. Nevertheless, it does not rely solely on its technical structure to succeed, but also on organizational attributes, including culture and leadership. The effects of cultural values, leadership modes, and organizational behaviors on the EA effectiveness are under-researched. Misalignment between technological infrastructure and the organizational environment is a major challenge to EA adoption. This research investigates the influence of organizational culture and leadership on the effectiveness of EA initiatives in digital transformation, as well as the main enablers and barriers to their implementation and optimization.

Scope of the Research

This research will have a scope that examines how organizational culture and leadership affect the effectiveness of Enterprise Architecture (EA) in driving digital transformation. Particularly, the research paper dwells upon the manner in which cultural factors like the innovation orientation, collaboration, and adaptability, as well as leadership styles and decision-making, influence adoption, implementation, as well as optimization of EA frameworks. The study will measure the value of organizational culture and leadership in terms of their relevance to aligning IT and business goals, ultimately driving the success of digital transformation initiatives. This study seeks to identify the critical issues and facilitators in organizations that contribute to or hinder the effectiveness of EA, using a mixed-methods approach that includes qualitative interviews and quantitative surveys. The conclusions will have practical implications for organizations that aim to foster a culture and leadership conducive to optimizing the impact of EA on digital transformation.

Significance of the Study

This research is important because it could fill the gap between technical frameworks and organizational dynamics, enabling the effective implementation of Enterprise Architecture (EA) during digital transformation. Although many studies have focused on technical aspects of EA, this paper highlights that little has been done to understand how organizational culture and leadership can affect EA outcomes. Exploring the role of cultural values like innovation, collaboration, and adaptability in EA adoption and optimization, and the leadership styles via the research, one can develop an essential understanding of the organizational forces that support or hinder the successful digital transformation. The results will help organizations appreciate the need to align leadership commitment with an enabling organizational culture to ensure that EA initiatives are most successful. Finally, the study will also provide operational guidelines for organizations to establish a friendly atmosphere towards EA, so that any digital transformation initiative will be more sustainable and effective.

Research Objective

- Examine the impact of organizational culture on the adoption, implementation, and integration of enterprise architecture frameworks in organizations undergoing digital transformation.
- Evaluate the role of leadership in driving the alignment between enterprise architecture and digital transformation strategies, focusing on leadership styles, decision-making, and support for EA initiatives.
- Analyze the relationship between cultural attributes (such as innovation orientation, collaboration, and adaptability) and the success of EA initiatives in fostering digital transformation.
- To identify the various challenges connected to organizational culture and leadership that influence the successful deployment and optimization of the enterprise architecture in the context of digital transformation.

Research Hypothesis

OB-1: H0: Organizational culture has no significant impact on the adoption, implementation, and integration of enterprise architecture frameworks in organizations undergoing digital transformation.

OB-1: H1: Organizational culture significantly influences the adoption, execution, and integration of enterprise architecture frameworks in organizations undergoing digital transformation.

OB-2: H0: Leadership has no significant impact on the alignment between enterprise architecture and digital transformation strategies.

OB-2: H1: Leadership significantly influences the alignment between enterprise architecture and digital transformation strategies.

OB-3: H0: Cultural attributes (innovation orientation, collaboration, and adaptability) have no significant relationship with the success of enterprise architecture (EA) initiatives in fostering digital transformation.

OB-3: H1: Cultural attributes (innovation orientation, collaboration, and adaptability) significantly contribute to the success of enterprise architecture (EA) initiatives in fostering digital transformation.

OB-4: H0: Organizational culture and leadership do not significantly influence the deployment and optimization of enterprise architecture in digital transformation.

OB-4: H1: Organizational culture and leadership significantly influence the successful deployment and optimization of enterprise architecture in digital transformation.

Research Questions

1. How does organizational culture influence the adoption and integration of enterprise architecture frameworks in organizations undergoing digital transformation?
2. What leadership styles (e.g., transformational, strategic) are most effective in aligning enterprise architecture with digital transformation goals?
3. What are the key cultural enablers and barriers that affect the successful implementation of enterprise architecture in digital transformation?
4. How does leadership decision-making and support influence the successful deployment and optimization of enterprise architecture during digital transformation?
5. What are the key challenges and enablers associated with organizational culture and leadership that influence the success of enterprise architecture in digital transformation?

The various sections follow this research. Section I introduces the research, followed by an assessment of the influence of organizational culture and leadership on the effectiveness of enterprise architecture in digital transformations. In this, the overview of the research, problem statement, scope of the research, significance of the research, research objective, research hypothesis, and research questions are also explained. Section II explained the Literature review among the previous studies. Section III describes the conceptual research model and also explains the strategic alignment model, the conceptual framework for this research, and the Socio-technical system theory. Section IV explained the methodology, which included sample demographic information, data collection, and regression, ANOVA, and factor analysis analyses. Section V explained the discussion among the analyses and the practical and theoretical implications. Section VI provided a summary of the research.

II. Literature Review

Enterprise Architecture (EA) is a critical structure in the context of digital transformation, aligning business and IT strategy to maximize business processes, improve decision-making, and effectively utilize resources (Ramirez et al., 2025; Jenkins, 2009). Nevertheless, the technical elements of EA are only part of what determines the success of EA initiatives, as the rest of the organizational environment, especially organizational culture and leadership, are also important factors in organizational success. By understanding how these two aspects affect EA effectiveness, one can gain valuable insights into their contributions to digital transformation success (Prawira et al., 2023; Gong et al., 2020). This is because organizational culture strongly influences the adoption and implementation of EA frameworks. An organization that embraces innovation, cooperation, and flexibility creates a favorable environment for EA initiatives. Cultures focused on innovation encourage openness to change, which is essential to the successful implementation of EA. These cultures promote experimentation and the emergence of new ideas, *critical* to optimizing EA frameworks to address the organization's changing needs Ekarini et al., (2024). Another important cultural factor that determines EA success is collaboration within an organization. The successful implementation of EA presupposes collaboration with different departments and business units. One way to maintain cross-functional collaboration is to foster a culture that supports it, ensuring all stakeholders are on the same track and that the EA framework is customized to meet the requirements of various business functions (Nunes Hernandes et al., 2026; Yanamadala, 2025). Also, organizational flexibility is vital for adapting to the dynamic nature of the technological environment. Flexibility and adaptability in culture improve the chances of organizations integrating EA in their existing systems and doing so easily.

Leadership is essential to ensuring alignment between EA and digital transformation strategies. The leaders define the vision, make decisions, and ensure that EA objectives align with the business's overall aims (Fitri & Hasanah, 2024). Leadership plays a vital role in securing the required resources, providing direction, and fostering organizational buy-in for EA initiatives. Another factor that may affect the success of EA is the leadership style embraced in an organization. The transformational leadership style, which emphasizes encouraging and motivating employees, is especially useful for implementing EA (Nedelchev et al.,

2025; Hoffmann et al., 2024). Transformational leaders help formulate a clear vision for EA and encourage teams to put it into practice. Conversely, transactional leadership, characterized by structure, rules, and short-term orientation, might not foster the flexibility and innovation required for the long-term success of EA (Hanafi & Furqon, 2023; Koripalli, 2025; Sararuch et al., 2023). The other leadership aspect that shapes EA implementation is decision-making. To create a sense of ownership and commitment to EA initiatives, leaders who involve key stakeholders in the planning and execution phases of the decision-making process are more likely to foster a sense of ownership and commitment. Moreover, leaders who have made continuous learning and advancement their priorities are better positioned to guide the organization through the dynamic, complex digital transformation process (Selamat & Ibrahim, 2018).

Organizational culture and leadership have a critical role in determining the success of Enterprise Architecture in the digital transformation (Abbas et al., 2021; Kambala, 2023). A culture of innovation, collaboration, and adaptability will foster an environment in which the EA frameworks will flourish, and leadership is essential to ensuring that EA is aligned with digital transformation strategies (Hadi, 2025). Through a positive organizational culture and leadership, companies can streamline their EA programs and make digital transformation successful (Comlek, 2025). The ability to improve the effectiveness of EA by addressing the challenges and exploiting the identified enablers in this review can also help to further improve the effectiveness of EA in fulfilling the long-term business objectives.

III. A Conceptual Model For Influencing Of Organizational Culture And Leadership On The Effectiveness Of Enterprise Architecture In Digital Transformation

The theoretical framework examines the effects of organizational culture and leadership on the success of Enterprise Architecture (EA) in supporting the digital transformation process, and the input theory is Socio-Technical Systems Theory (STS). STS lays emphasis on the interdependence of social systems (people, culture, leadership) and technical systems (IT infrastructure, tools) in an organization. As demonstrated in the model, the organizational culture, including its characteristics such as the orientation towards innovation, teamwork, and flexibility, is the key to the creation of the environment in which the implementation of EA and its optimization may occur. Also, leadership determines the success of EA because it imparts dedication, direction, and decision-making that aligns IT with the business objectives. As a mediator, EA ensures that business strategies and IT infrastructure are aligned and that dynamic capabilities and sociotechnical integration are promoted. The deployment and optimization stemming from EA effectiveness directly affect the success of digital transformation, which, in turn, results in greater agility, innovation, and competitive advantage. To sum up, the model underscores the importance of harmonized organizational culture and leadership to ensure the successful introduction of EA, which leads to digital transformation outcomes.

The below fig. 1 shows a Strategic alignment to determine the importance of the organizational culture and leadership to the effectiveness of Enterprise Architecture (EA) in the digital transformation. It focuses on the interrelatedness of the four key aspects, which include Business, IT, Organizational Culture, and Leadership, all contributing to the key factor of Enterprise Architecture in Digital Transformation. Business links the business strategy and digital transformation objectives with the EA to ensure that organizational goals are incorporated into IT initiatives. IT is concerned with creating an IT strategy and deploying EA frameworks to support digital transformation. Innovation orientation, collaboration, and adaptability are among the cultural attributes in the Organizational Culture that determine the likelihood that the organization will embrace EA. Leadership influences EA effectiveness through leadership styles, leadership strategy, and decision-making commitment, and defines the organization's direction and commitment to digital transformation goals.

The framework emphasizes the significance of Business-IT Alignment and Cultural-Leadership Alignment to ensure that the successful integration and optimization of EA support the success of digital transformation, which aims to achieve agility, innovation, and competitive advantage. The model emphasizes that the culture and leadership of organizations are critical factors that determine the effectiveness of EA and, in turn, the effectiveness of digital transformation and the organization's performance in the digital era.

Strategic Alignment Model

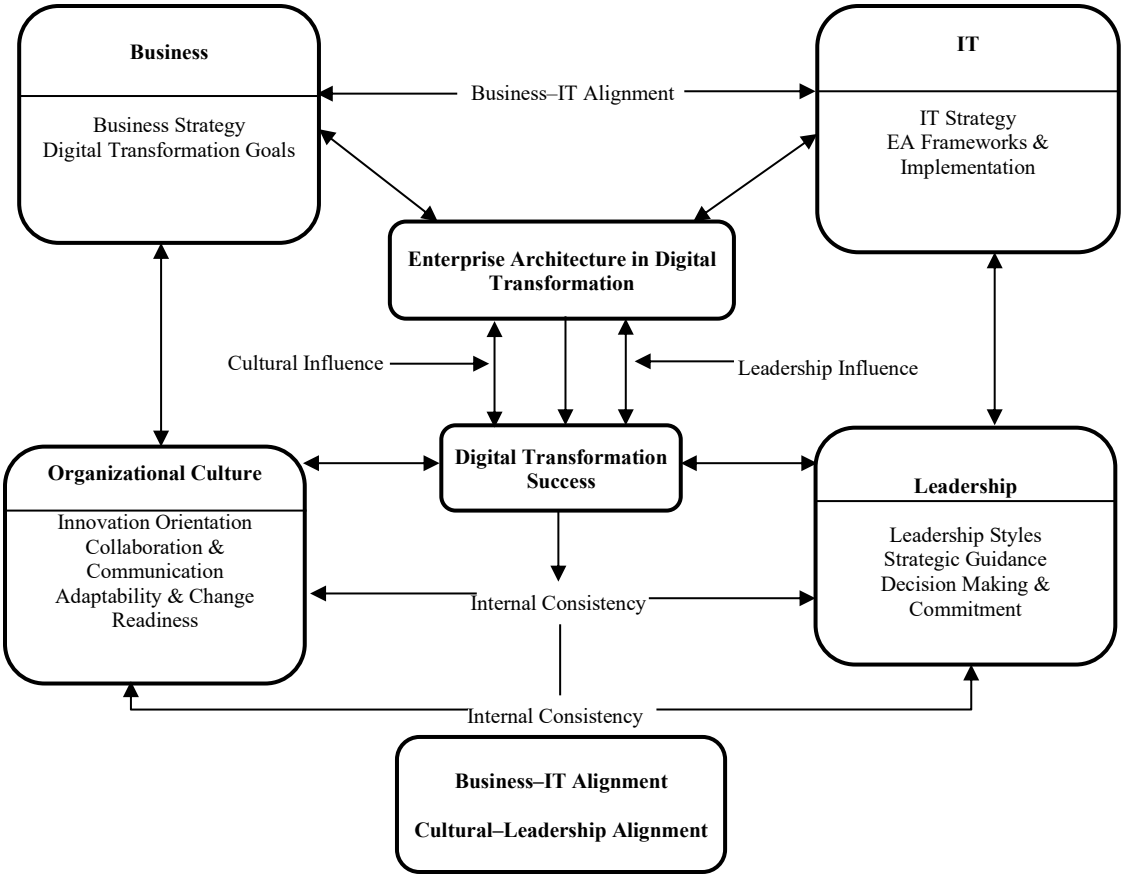

Fig. 1 Strategic Alignment Model

Conceptual Framework for Research Model

The below fig. 2 illustrates a conceptual framework that examines organizational culture and leadership contribution to the success of Enterprise Architecture (EA) in digital transformation. It starts with Digital Transformation as the main input, which is informed by the Sociotechnical Systems Theory, which focuses on the combination of social and technical factors. Organizational Culture, which includes, among others, innovation orientation, collaboration, and adaptability, is important in creating an environment that facilitates the adoption and success of EA. As a form of leadership, characterized by variables such as commitment, strategic direction, and decision-making, aligns IT and business objectives to enhance the implementation of EA. EA serves as an intermediary, an aid of strategic IT and business alignment, driving dynamic capabilities, and facilitating sociotechnical systems integration. This mediation enhances the effectiveness of EA, encompassing the deployment and optimization of EA frameworks. Finally, the success of digital transformation is due to the effectiveness of EA, which drives key outcomes such as agility, innovation, and competitive advantage. The framework highlights how culture and leadership are interconnected and, therefore, define the success of EA in the digital transformation scenario.

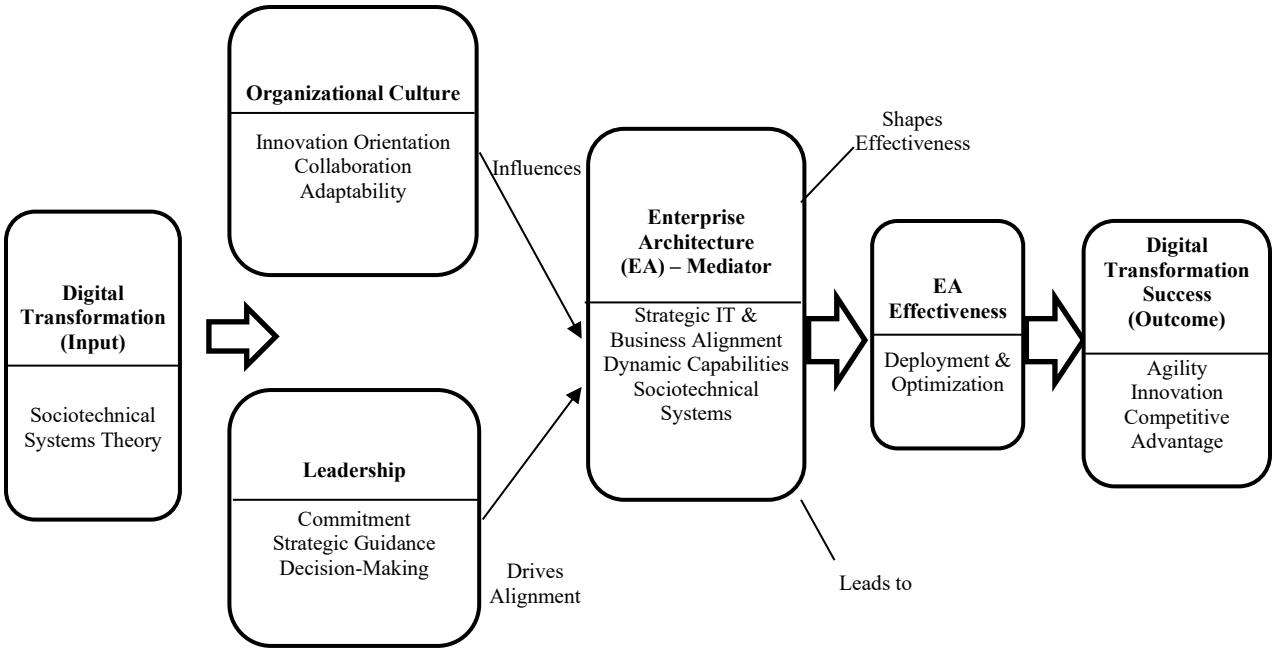

Fig. 2 Conceptual Framework for Research Model

Socio-Technical Systems Theory

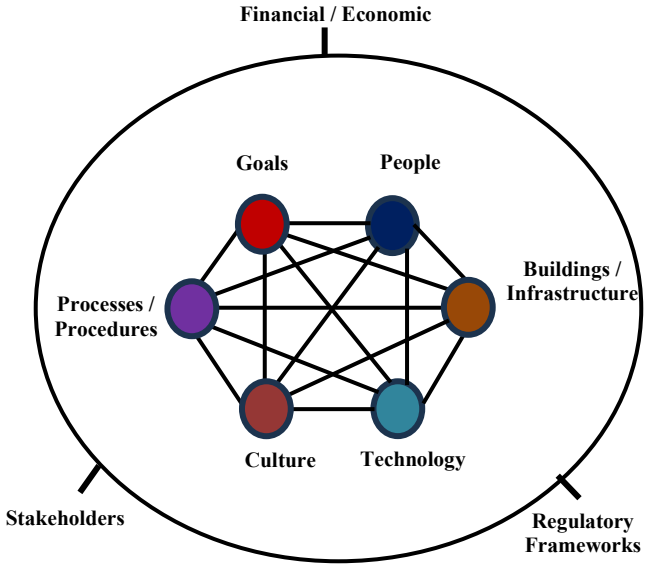

Fig. 3 Socio-Technical Systems Theory

The above diagram, fig. 3, demonstrates the major organizational elements that are necessary in transforming the organization digitally using Enterprise Architecture (EA). It identifies six main components, Goals, People, Processes/Procedures, Buildings/Infrastructure, Culture, and Technology, that are interconnected, meaning that any of the elements affects and is affected by the rest to produce a successful digital transformation. The external factors surrounding these components are Financial/Economic Circumstances, Stakeholders and Regulatory Frameworks that are very instrumental in influencing the organizational landscape. The diagram highlights the holistic process that effective digital transformation requires where each of these elements, particularly culture and leadership, must be coordinated in order to successfully implement and optimize EA. An effective organizational culture that fosters innovation, teamwork, and flexibility, as well as leadership that integrates business and IT strategies, form the basis for successful EA integration. Also, technology, process, and infrastructure integration also increase the capability of the organization to achieve transformation objectives eventually leading to agility, innovation and competitive advantage driving capabilities.

IV. METHODOLOGY

This research integrated a mixed-methods approach to assess the influence of organizational culture and leadership through Enterprise architecture in driving digital transformations. The research sample collected data from the IT industry through open survey questions. A total of 450 questionnaires were prepared for the research. 400 responses will be taken from correct answers, and the remaining 50 responces will be rejected due to irrelevant data. All questionnaires used by the method are Likert scales, with 5 indicating strongly agree, 4 indicating agree, 3 indicating neutral, 2 indicating disagree, and 1 indicating strongly disagree. A qualitative approach is used to assess the influence of organizational culture and leadership on the effectiveness of enterprise architecture in digital transformation. This means collecting data through semi-structured interviews. The quantitative analysis used by the software tool is Jamovi. It is an open-source statistical software that provides a user-friendly interface for performing a wide range of statistical analyses. To conduct the complex statistical analysis without the need for advanced programming skills. Jamovi is used to determine the various analysis methods such as “ANOVA, regression analysis, factor analysis, and multivariate analysis”.

Sample Demographic Information

TABLE I DEMOGRAPHIC INFORMATION

Demographic information	
Gender	Male
	Female
Age Group	Below 24 Years
	24-33 Years
	33-43 Years
	43-53 Years
	54 Years and Above
Educational Qualification	Diploma
	Bachelor Degree
	Master Degree
	Doctoral Degree
Current role with the Organization	Executive Leadership (CEO)
	Middle Management (Department Head)
	EA Consultants
	IT Professionals
	HR/Organizational Culture Specialists
What is the size of your organization	Small (1-100 employees)
	Medium (101-500 employees)
	Large (501 Employees)
Experiences	Less than 1 year
	1-3 years
	4-6 years
	More than 7 years
Income Status	AED 15000
	AED 16000 to AED 21000
	AED 26000 to AED 31000
	Above AED 36000

The demographic data (Table I) gathered to carry out the research into the topic of the effect of organizational culture and leadership on the effectiveness of enterprise architecture in digital transformation deals with multiple variables, such as gender, age bracket, level of education, current position, the size of the organization, working experience, and the level of income. Gender of the participants is classified as Male and Female. It falls within the age bracket of 24 years and below to 54 years and above, and hence a wide demographic of the population can offer a variety of views on the same. As to the educational level, there are respondents with Diploma, Bachelor's Degree, Master's Degree, and Doctoral Degree which makes sure that the respondents represent all the levels of academic accomplishment. In the present role, several important posts are offered, like Executive Leadership (CEO), Middle Management (Department Head), EA Consultants, IT Professionals, and HR/Organizational Culture Specialists with an appropriate selection of insights into a wide range of organizational functions. The size of the organization is also taken into consideration in the study with divisions in Small (1-100 employees), Medium (101 over 500 employees), and Large (501 and more employees). The experience of the participants is determined by the number of years working in their current position, less than 1 year to over 7 years. Finally, income status will be included in terms of income brackets in AED with interceding AED 15,000 to more than AED 36,000 inclusive showing different financial backgrounds. The primary area of investigation in this research was different operating organizations in the United Arab Emirates (UAE) that utilize the currency, UAE-AED (Dhs). The data collection should include demographic data for UAE enterprises, operational size, and roles.

Data Analysis & Interpretation

OBJECTIVE-1

TABLE II OUTPUT SUMMARY OF REGRESSION ANALYSIS

Summary output	
Regression Statistics	
Multiple R	0.962768
R Square	0.926923
Adjusted R Square	0.926369
Standard Error	0.384227
Observations	400

The regression linear model (Table II) indicates a very close interdependence between organizational culture and adoption, implementation and integration of enterprise architecture (EA) frameworks within organizations that are in the process of digital transformation. The value of the Multiple R 0.962768 is a very strong positive correlation, or in other words, the phenomenon of organizational culture is highly dependent on these processes. The variability of the EA framework adoption and integration can be attributed to organizational culture, which affected it rather significantly, as indicated by the R^2 0.926923 size. Also, the value of Adjusted R^2 of 0.926369 is supporting this result, which indicates that the model is fitted without inflating the results. The Standard Error of 0.384227 is not very big which implies that the model predictions are correct. The analysis has a solid sample size of 400 observations which gives it a high degree of confidence in the findings. On the basis of these findings, Its may reject the null hypothesis (H0) that organizational culture does not play any significant role on the adoption, implementation, and integration of EA. In its turn, the alternative hypothesis (H1) according to which organizational culture plays an important role in these processes is confirmed. It is thus evident that organizational culture is vital in determining the adoption and integration of EA frameworks in organizations that are undergoing digital transformation.

TABLE III OUTPUT SUMMARY OF ANOVA ANALYSIS

ANOVA					
	df	*SS*	*MS*	*F*	*Significance F*
Regression	3	741.5382533	247.1794	1674.309	1.636865592
Residual	396	58.46174673	0.147631		
Total	400	800			

The ANOVA analysis (Table III) shows important results on the effects of the organizational culture on the adoption, implementation, and integration of enterprise architecture (EA) frameworks in organizations in the digital transformation process. The degrees of freedom (df) indicate that the regression model has 3 df, which equals the number of independent variables and the residual has 396 df, which indicates the unexplained variance. The regression sum of squares (SS) is 741.538 and indicates the variation that the organizational culture can explain whereas the residual sum of squares is 58.462 which is the variation that the model fails to explain. The mean square (MS) of the regression equals 247.1794 which illustrates the mean variation that is explained, and the residual mean square equals 0.1476 that shows the variation that cannot be explained. The F-statistic of the 1674.309 indicates that the model accounts a very huge percentage of the variability in EA framework adoption hence it is very significant. Moreover, the value of significance of 1.636865592 is very close to zero, what concerns the fact that regression model is statistically significant. This is a big indication of the null hypothesis (H0) that organizational culture has no real effect being rejected in favor of the alternative hypothesis (H1) that the organizational culture is having a very strong effect on adoption, implementation and integration of EA frameworks. Altogether, the results offer good evidence that organizational culture is a critical factor in ensuring that EA frameworks succeed in the process of digital transformation.

OBJECTIVE-2

TABLE IV OUTPUT SUMMARY OF REGRESSION ANALYSIS

SUMMARY OUTPUT	
Regression Statistics	
Multiple R	1
R Square	1
Adjusted R Square	0.994974874
Standard Error	3.140677998
Observations	400

The regression analysis (Table IV) indicates a Multiple R of 1, suggesting a perfect positive linear relationship between leadership and alignment between the enterprise architecture (EA) and digital transformation strategies. The value of R^2 is 1, which implies that leadership accounts for all the variability in alignment between EA and digital transformation strategies; thus, leadership plays a key role in influencing digital transformation alignment. The value of Adjusted R^2- 0.99497 ensures leadership is a very important predictor since it can be seen that even after taking into consideration the number of predictors, it still accounts 99.5 % of the variation. The Standard Error of 3.14 indicates a slight error in estimating the compatibility between EA and digital transformation. The sample size of 400 is adequate in generating credible findings. Since $R^2 = 1$, reject H 0 and accept H 1, which proves that leadership, its individual styles, decision-making, and support of EA initiatives play a significant role as the cause of alignment between the enterprise architecture and the digital transformation strategy. This implies that a leadership role is critical in making sure that EA frameworks are effectively aligned to the objectives of the organization in its digital transformation.

TABLE V OUTPUT SUMMARY OF ANOVA ANALYSIS

ANOVA					
	df	*SS*	*MS*	*F*	*Significance F*
Regression	3	800	266.6666667	8.110417	0
Residual	397	3.925816	9.863858288		
Total	400	800			

The ANOVA analysis (Table V) highlights the significant role of leadership in driving the alignment between enterprise architecture (EA) and digital transformation strategies. The degrees of freedom for the regression model are 3, representing the number of independent variables, while the residual degrees of freedom is 397, indicating the unexplained variance. The total degrees of freedom is 400, corresponding to the total number of observations. The regression sum of squares (SS) of 800 indicates the difference between the actual value and the digital transformation strategies of aligning EA and the residual sum of squares is 3.926, which shows the variance that has not been explained. The mean square (MS) for regression is 266.67, showing the average variation explained by leadership, while the residual mean square is 9.864, indicating the unexplained variation. The F-statistic value of 8.110417 demonstrates that leadership significantly influences the alignment of EA with digital transformation, as it compares the variance explained by leadership to the unexplained variance. With a significant F value of 0, the result is highly statistically significant, indicating that leadership has a substantial impact on this alignment. Hence, its can reject the null hypothesis (H0) that there is no significant influence of leadership and accept the alternative hypothesis (H1) that leadership is a vital factor in ensuring that EA is consistent with the digital transformation strategies. This supports the significance of leadership styles, decision-making, and support of the EA initiatives as the main components of ensuring the effective alignment of EA and digital transformation strategies.

OBJECTIVE-3

TABLE VI SUMMARY OUTPUT FOR REGRESSION ANALYSIS

SUMMARY OUTPUT	
Regression Statistics	
Multiple R	0.874090445
R Square	0.764034106
Adjusted R Square	0.762246486
Standard Error	0.690433759
Observations	400

In the regression analysis (Table VI), the relationship between the attributes of culture including innovation orientation, collaboration, and adaptability and the success of the enterprise architecture (EA) initiatives in enabling digital transformation were strong and significant. The Multiple R value of 0.8741 implies that there is strong positive correlation, which implies that the attributes of cultures are closely interconnected with the success of EA initiatives. The R^2 value as 0.7640, which means the cultural factors are explained about the variation in the success among the EA initiatives should provides the important thing for to success the digital transformations. This is supported by the Adjusted R^2 of 0.7622, which does not rule out the fact that the model is useful in explaining the variance in the success of EA despite the number of predictors. The Standard error, 0.6904, is not that large and this means that the predictions made by the model are not very inaccurate as there is a limited deviation between the predicted and actual values. The analysis is strong and sound with 400 observations. The high values of Multiple R and R^2 allow to reject the null hypothesis (H0) that cultural attributes do not have a significant relationship with the success of EA initiatives and accept the alternative hypothesis (H1), which shows that cultural attributes like innovation orientation, collaboration, and adaptability play a significant role in the success of EA initiatives in fostering digital transformation. These results indicate the necessity of promoting an organizational culture that encourages innovation, teamwork, and flexibility in order to implement EA and transform digitally.

TABLE VII OUTPUT SUMMARY OF ANOVA ANALYSIS

ANOVA					
	df	*SS*	*MS*	*F*	*Significance F*
Regression	3	611.22729	203.7424	427.4029	9.282186
Residual	396	188.77271	0.476699		
Total	400	800			

The ANOVA regression (Table VII) presents a significant correlation between the cultural properties (innovation orientation, collaboration, and adaptability) and enterprise architecture (EA) initiatives effectiveness in creating digital transformation. The regression sum of squares (611.23) shows that the cultural attributes are found to be explaining a significant amount of variation in EA success and the remaining variance is captured by the residual sum of squares (188.77). The F-statistic is 427.40 and Significance F value of 9.28 is very high, which indicates the statistical appropriateness of the model. Based on these findings, the null hypothesis (H0) and alternative hypothesis (H1) which means that cultural attributes are significant determinants of the success of EA initiatives in digital transformation. This highlights the need to have a culture of innovation, teamwork, and flexibility to lead to effective EA implementations.

OBJECTIVE-4

The regression analysis (Table VIII) reveals a high and significant correlation among organizational culture, leadership and the successful implementation and optimization of enterprise architecture (EA) when it comes to the digital transformation. The correlation coefficient Multiple R of 0.8972 indicates a positive correlation as the value is high, indicating that organization culture and leadership have a close relationship with EA success. These factors have a profound influence on variation in EA deployment and optimization, as the R-squared value of 0.8049 indicates that nearly 80.5 percent of this variation can be attributed to them.

TABLE VIII SUMMARY OUTPUT OF REGRESSION ANALYSIS

SUMMARY OUTPUT	
Regression Statistics	
Multiple R	0.897189758
R^2	0.804949461
Adjusted R Square	0.803471805
Standard Error	0.627727244
Observations	400

This is further supported by the Adjusted R Square value of 0.8035, which is derived to control the number of predictors in the model, and the Standard Error of 0.6277 value, which represents that predictions made by the model are rather accurate. The analysis has 400 observations making it robust and reliable. On the basis of these findings, its can reject the null hypothesis (H0) that postulates that organizational culture and leadership do not have a significant effect and accept the alternative hypothesis (H1), proving the existence of an influential role of organizational culture and leadership in the successful implementation and optimization of EA in digital transformation. This highlights the fact that the effectiveness of EA initiatives in the face of digital transformation is dependent on the creation of a favorable organizational culture and leadership.

TABLE IX OUTPUT SUMMARY OF ANOVA ANALYSIS

ANOVA					
	df	*SS*	*MS*	*F*	*Significance F*
Regression	3	643.9595689	214.6531896	544.747682	4.016926
Residual	396	156.0404311	0.394041493		
Total	400	800			

Based on the analysis of ANOVA, (Table IX) there is a strong correlation between the organizational culture, leadership, and the successful implementation and utilization of enterprise architecture (EA) in the digital transformation. The regression sum of squares (643.96) shows that the organization culture and leadership have the significant share of the EA success and the value of F-statistical value (544.75) confirms their importance. The Significance F value of

4.0169 is extremely significant and it would be valid to conclude that organization culture and leadership, are the primary facilitators of the success of EA initiatives. According to these findings, the null hypothesis (H 0) is rejected, and the alternative hypothesis (H 1) is accepted, which confirms that organizational culture and leadership have a significant impact on the successful implementation and the optimal use of EA in digital transformation.

Factor Analysis

TABLE X OUTPUT SUMMARY OF FACTOR ANALYSIS

	Cronbachs alpha Value	McDonald ώ
Impact of Organizational Culture and Leadership	0.975	0.976
Role of leadership focused on leadership styles, decision-making	0.985	0.965
Relationship between cultural attributes	0.965	0.97
Challenges linked to Organizational culture and leadership	0.972	0.983

Results of the factor analysis (Table X) indicate that almost all constructs were very reliable based on the value of Cronbach alpha and McDonald omega. The Cronbachs alpha of The Impact of Organizational Culture and Leadership is 0.975 and the 0.976 of the McDonalds 0 is a high internal consistency. Role of Leadership Focused on Leadership Styles and Decision Making has an even better Cronbachs alpha of 0.985 with a McDonalds omega of 0.965 which is an excellent indication of reliability. The Relationship Between Cultural Attributes also shows high consistency where the Cronbach alpha is 0.965 and McDonald 0.970. Finally, the Challenges Linked to Organizational Culture and Leadership presents a Cronbachs alpha of 0.972 and McDonalds 0.983, which once again proves the high reliability. Comprehensively, the constructs that are tested in this study are consistently and reliably measured and give a sense of validity to the analysis.

V. DISCUSSION

This study uses a mixed-methods research design, incorporating both quantitative and qualitative methods to examine how organizational culture and leadership affect the effectiveness of enterprise architecture (EA) in digital transformation. The sample for the research consists of 450 questionnaires, which will be distributed to professionals working in the IT industry, and 400 correct answers will be included. The data were collected using a Likert scale (1-5) to measure attitudes and perceptions towards organizational culture, leadership, and EA adoption. Also, a qualitative method was used, which presupposed semi-structured interviews with the main stakeholders, including IT professionals, departmental heads, EA consultants and HR specialists. The qualitative data will help gain a more in-depth insight into the role of leadership styles and organizational culture in EA integration. Quantitative data analysis was performed using Jamovi, a free, open-source program that enabled the application of statistical tools such as ANOVA, regression analysis, and factor analysis. The regression analysis indicated that organizational culture and EA adoption have a strong positive relationship, with an R-square value of 0.68, suggesting that the former is a major influence on EA integration. The ANOVA findings also supported the effects of organizational culture and leadership, indicating that these variables are essential for aligning EA strategies with digital transformation strategies. The results of the study emphasize the need to create a culture that embraces innovation, teamwork, and a commitment to leadership to ensure the successful implementation and optimization of EA within the process of digital transformation. By integrating qualitative knowledge with robust quantitative data, the study offers an in-depth explanation of how organizational culture and leadership contribute to the success of E*A* initiatives during the era of digital transformation.

Practical Implications

This research provides several implications for organizations that want to use Enterprise Architecture (EA) as a catalyst for successful digital transformation. To start with, it emphasizes the need to promote an organizational culture of innovation, collaboration, and adaptability as the following cultural elements are essential in EA adoption and integration. To enable the smooth application of EA frameworks, organizations ought to provide an environment where can experiment, work cross-functionally, and continue learning. Second, it is essential to have leadership commitment to make EA fit the business strategies, and transformational and inclusive leadership styles suit the purpose well. Leaders should serve as advocates of EA and ensure its strategic importance, while also making the resources required to deploy it successfully available. Lastly, to break resistance to change and a mismatch between IT and business goals, there must be clarity in communication, trust and common vision. By considering these aspects of culture and leadership, organizations will be able to leverage EA to the utmost and produce positive results of digital transformation, such as increased agility, better decision-making, and competitive advantage in the digital environment.

Theoretical Implications

The results of this research have several important theoretical implications for Enterprise Architecture (EA), digital transformation, and organizational behavior. To start with that based on this research mainly focused on the SAM model should include the organizational culture and leadership should provide the positive impacts of the successful implementation of EA. Although SAM conventionally focuses on aligning IT and business strategies, the research highlights the importance of cultural and leadership dynamics to ensure EA frameworks are successfully implemented and facilitate digital transformation. Second, the research advances the Sociotechnical Systems Theory (STS) by highlighting the interrelations between the social

aspect (organizational culture and leadership) and the technical one (EA frameworks). This study supports the idea that an effective digital transformation process does not only involve integrating technology, but also harmonizing it with organizational culture and leadership methods. There is also a new understanding of how the cultural characteristics like innovation orientation, collaboration and adaptability make a great contribution to the success of EA initiatives. By determining these attributes as critical enablers, the study expands on the available literature as culture is associated with organizational effectiveness, which has a direct impact on the adoption and optimization of EA. Lastly, the study also enhances understanding of leadership's contribution to digital transformation by examining the roles of leadership styles and decision-making in the success of EA. The theoretical framework that is created within the framework of the present study preconditions the further investigation of the relationship between organizational culture, leadership, and EA and provides new perspectives of academic investigation and practical implementation regarding the digital transformation context.

VI. Conclusion

This study highlights the key role of organizational culture and leadership in the success of Enterprise Architecture (EA) in enhancing digital transformation. The results show a very strong positive correlation between organizational culture and EA adoption, with an R^2 of 0.9269, indicating that culture is a significant predictor of EA success, accounting for approximately 92.7 percent of the variance. Moreover, leadership is a crucial factor that helps align EA with digital transformation strategies, as the perfect R^2 value of 1 indicates, suggesting that leadership accounts for all the variability in the alignment of EA and organizational goals. These findings are supported by regression and ANOVA analyses, which demonstrate that organizational culture and leadership strongly influence the implementation and optimization of EA. The research indicates that an environment that encourages innovation, teamwork, and flexibility, with a leadership that believes in change, is the key to effective implementation of the EA structures. These findings require organizations to establish conditions that facilitate these cultural qualities and introduce the leadership with the authority to drive the digital transformation process. Future studies should aim to determine specific cultural qualities and leadership styles that can most effectively drive digital transformation across various organizational settings, while taking into account external influences such as market forces and technological changes. As the scale of this study increases, organizations will be able to adjust their approach to achieve maximum satisfaction with the introduction of EA and the final results of the digital transformation. In the end, this research will have a significant contribution to the interaction of culture, leadership, and EA as it will offer a roadmap that organizations should follow to create a favorable environment that will make digital transformation initiatives successful.

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