

Effects of Organizational Culture Types on Construction Project Performance: A Competing Values Framework Approach in Ghanaian Perspective

Frank Ackon¹
Nongiba Alkanam Kheni²
John Victor Mensah³
Chelteau Barajei⁴

¹frank.ackon@ucc.edu.gh

²kalkanam@yahoo.com

³john.mensah@ucc.edu.gh

⁴chelteau@yahoo.com

^{1,3}University of Cape Coast, ^{2,4}Akenten Appiah-Menkah University of Skills Training and Entrepreneurial Development,
^{1,2,3,4}Ghana

Submitted: 19th Nov 2024, Accepted: 27th Nov 2024, Published: 13th Dec 2024

DOI: <https://doi.org/10.51867/ajernet.5.4.154>

ABSTRACT

Organizational culture plays a critical role in influencing various aspects of project performance. However, existing studies on the impact of specific cultural types on construction projects have produced mixed results. This research examines the effects of organizational culture types on the performance of construction projects. A descriptive cross-sectional design was adopted, utilizing a census sampling approach. Quantitative data were collected using structured questionnaires administered to 375 medium and large-size construction firms. The analysis employed both descriptive and inferential statistical methods, including correlation and regression analyses. The results revealed that market and hierarchy culture types positively influence construction project performance, while clan and adhocracy cultures do not exhibit a significant effect. Furthermore, cultural traits emphasizing external orientation, stability and control characteristic of a hybrid market-hierarchy culture were identified as stronger predictors of successful project outcomes compared to other cultural clusters. To optimize project performance, it is recommended that construction firms in Ghana transition from adhocracy-dominated cultures to hybrid market-hierarchy culture.

Keywords: Construction Firms, Medium and Large-Size, Organizational Culture, Project Performance

I. INTRODUCTION

Globally, achieving successful project outcomes remains a critical objective for stakeholders in the construction industry. While external factors such as economic volatility and regulatory pressures contribute to challenges like cost overruns, time delays, and project rework, internal factors, particularly organizational culture, are increasingly recognized as significant determinants of organizational and project success (Cameron & Quinn, 2011; Alla & Hassan, 2017; Osman et al., 2023). Organizational culture influences key aspects of project performance, including cost, quality, safety, client satisfaction, and employee productivity (Nguyen & Watanabe, 2017).

Despite the recognized importance of organizational culture, research findings on its specific impact on construction projects remain inconsistent. In developed economies, the relationship between organizational culture and project performance reveals mixed perspectives. For instance, Thomas et al. (2002) observed in Australia that clan cultures were positively associated with quality outcomes, whereas market cultures exhibited a negative correlation with quality. Similarly, Arditi et al. (2017), in their study of construction companies in the United States and India, found that clan cultures reduced project delays more effectively than market cultures. Conversely, Coffey and Willar (2010) reported no significant correlation between 'Involvement' (clan culture) and overall project performance in Hong Kong, highlighting the complexity of cultural dynamics in the construction sector.

In developing economies, studies conducted in Africa also highlight the role of organizational culture in shaping construction project outcomes. For example, Beyene (2021) assessed the effect of organizational culture on construction project performance in Addis Ababa, Ethiopia, and identified a positive relationship between all organizational culture types and performance metrics such as cost, time, quality, and stakeholder satisfaction. Among these, market-oriented cultures, which emphasize competition and goal achievement, exhibited the strongest correlation, while clan-oriented cultures, which focus on teamwork and collaboration, showed only minor relationships with these metrics. These findings suggest that while cultural factors are impactful, their effects vary depending on the specific outcomes and

operational contexts.

In Ghana, the construction industry plays a pivotal role in driving infrastructure development and generating employment opportunities. However, persistent challenges such as time and cost overruns, substandard quality, and project rework continue to impede project success (Bentil et al., 2017; Kpegba, 2018). These issues are often attributed to external factors, with limited attention given to internal factors such as organizational culture. While previous studies have explored the general organizational culture of the construction industry (Atuahene, 2016) and the impact of organizational culture on firm performance (Osman et al., 2023), limited research has specifically examined how organizational culture types influence project performance. This knowledge gap leaves critical questions unanswered about the role of culture in shaping project outcomes within Ghana's construction sector. To address this gap, this study employs the Competing Values Framework (CVF) to examine the influence of different organizational culture types (clan, hierarchy, adhocracy, and market) on project performance within Ghana's construction sector. By focusing on internal cultural factors, this study seeks to provide actionable insights into how organizational culture can be leveraged to improve project performance in a challenging and evolving industry.

1.1 Research Objectives

This study specifically seeks to:

- i. Assess the project performance of the surveyed construction firms.
- ii. Determine the prevailing organizational culture type within the surveyed firms.
- iii. Examine the effects of organizational culture types on overall construction project performance.
- iv. Explore the relationship between construction project performance and the traits of combined cultural clusters.

II. LITERATURE REVIEW

2.1 Theoretical Review

This study was underpinned by Resource-Based View Theory, Contingency Theory, and Competing Values Framework.

2.1.1 Resource-Based View (RBV) Theory

The Resource-Based View theory was propounded by Barney (1991). This theory emphasizes that internal organizational resources, including intangible assets like culture, are critical for achieving a competitive advantage. In this context, RBV supports the notion that adopting the right type of organizational culture could enhance project performance and provide a competitive edge in Ghana's construction industry.

2.1.2 Contingency Theory

The contingency theory was propounded by Fred Edward Fiedler. This theory posits that there is no one-size-fits-all approach to organizational management; rather, the effectiveness of strategies depends on situational factors, such as the external environment, project type, and team dynamics. This theory is relevant as it supports the idea that the impact of different organizational culture types (e.g., clan, hierarchy, market, or adhocracy) on project performance may vary depending on contextual factors in the Ghanaian construction industry.

2.1.3 Competing Values Framework (CVF) Theory

The Competing Values Framework by Cameron and Quinn (2011) forms the foundation of this study. CVF classifies organizational cultures into four types: clan, adhocracy, hierarchy, and market cultures. These cultures are distinguished by their focus on internal versus external operations, and flexibility versus control. These cultural types provide a structured lens for evaluating how cultural attributes influence construction project performance, such as cost, time, quality, and stakeholder satisfaction. This framework is particularly useful for identifying the alignment or misalignment between organizational culture and performance goals in Ghanaian construction projects.

Figure 1 shows the Competing Values Framework by Cameron and Quinn (2011). Clan culture is internally focused, emphasizing teamwork, employee empowerment, active engagement, collaborative decision-making, and strong loyalty among team members.

Adhocracy culture is externally focused, emphasizing innovation and flexibility in dynamic, creative, and fast-paced environments, making it an entrepreneurial place to work.

Market culture is externally focused, concentrating on external partnerships, competition, and achieving results, often prioritizing goals, profits, and customer satisfaction.

Hierarchy culture is internally focused, stressing order, structure, and control, ensuring that processes are followed strictly and consistently.

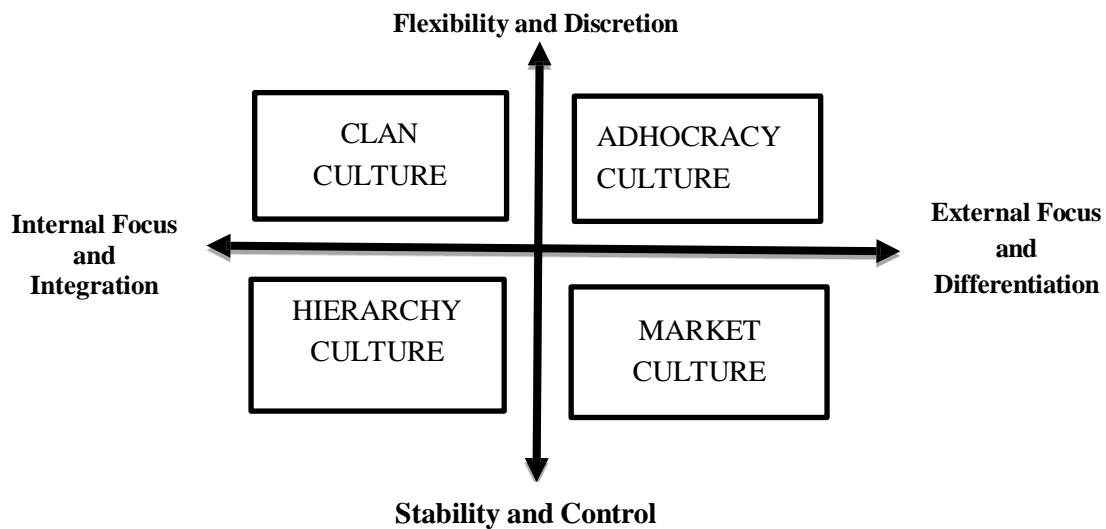


Figure 1
Competing Values Framework

Source: Adapted from Cameron and Quinn (2011)

2.2 Empirical Review

Literature suggests that organizational culture plays a crucial role in shaping project performance, influencing key aspects such as cost, quality, safety, client satisfaction, and employee productivity (Nguyen & Watanabe, 2017). In the construction industry, where compliance with regulations and client-driven demands is central, organizational culture holds particular importance. However, existing studies present mixed findings on how different types of organizational culture impact project performance outcomes.

Beyene (2021) investigated the relationship between organizational culture and construction project performance in Addis Ababa, Ethiopia, and identified distinct patterns. Clan culture had a moderate influence on cost but weaker associations with time, quality, and stakeholder satisfaction. Adhocracy culture exhibited moderate correlations across all performance indicators, including cost, time, quality, and stakeholder satisfaction. Hierarchy culture demonstrated moderate associations with cost, time, and stakeholder satisfaction but had a minor effect on quality. Conversely, market culture showed consistent moderate correlations with all performance metrics, highlighting the diverse ways in which cultural types affect project outcomes.

Arditi et al. (2017) explored the role of organizational culture in addressing construction project delays in the United States and India. Their study found that clan cultures were more effective than market cultures in reducing delays, attributing this to the collaborative and team-oriented nature of clan cultures, which supports better time management. Similarly, Thomas et al. (2002), employing the Competing Values Framework (Cameron & Quinn, 1999), evaluated the impact of project culture on quality outcomes in 13 Australian construction projects. Their findings indicated that clan cultures resulted in above-average project performance, while hierarchy and adhocracy cultures produced average outcomes. Market cultures, however, led to below-average performance. The authors recommended that construction firms transition from market-dominated cultures to clan cultures to achieve improved quality outcomes.

Coffey and Willar (2010) applied the Denison Organizational Culture Survey Instrument to examine the relationship between cultural traits and construction project performance in Hong Kong. Their analysis revealed significant positive correlations between three cultural traits: 'Consistency (hierarchy),' 'Adaptability (adhocracy),' and 'Mission (market)' and overall project performance. Among these traits, 'Adaptability' showed the strongest correlation, followed by 'Mission,' while 'Consistency' had the weakest. However, there was no statistically significant correlation between 'Involvement (clan)' and overall performance. Additionally, the study identified that high company effectiveness was strongly associated with cultural traits emphasizing "external pressures" and "stable structures."

The variation in these findings underscores the need for context-specific approaches when applying organizational culture to enhance construction project performance. Collectively, these studies highlight that while some cultural types, such as clan or adhocracy, may excel in specific areas; their effectiveness largely depends on the operational and environmental context in which construction projects are implemented.

2.3 Conceptual Framework

The conceptual framework for this study includes four independent variables: clan culture, adhocracy culture, hierarchy culture, and market culture, with the dependent variable being the overall performance of construction projects. These relationships are illustrated in Figure 2, where arrows show the direct influence of each type of organizational culture (the independent variables) on the performance of construction projects, the dependent variable.

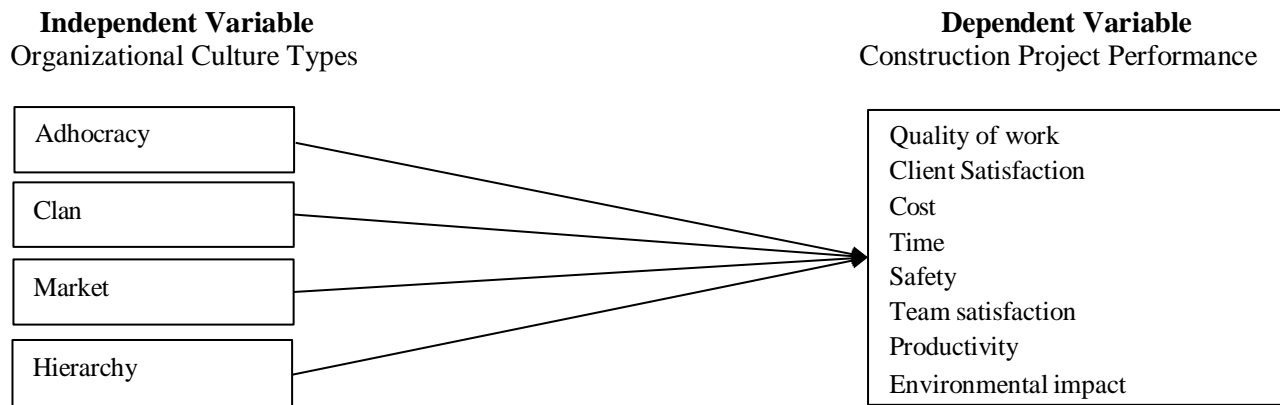


Figure 2
Conceptual Framework

III. METHODOLOGY

3.1 Research Design

This research employed descriptive cross-sectional survey design to gather quantitative data to explore the effects of organizational culture types on construction project performance.

3.2 Study Population and Sample Size

The contractors registered with the Association of Building and Civil Engineering Contractors of Ghana (ABCECG) were the population of the study, The ABCECG has memberships from different construction firms across the country and also serves as a merging point of construction contractors from different firms (Atuahene, 2016). According to the ABCECG secretariat, the total number of D1K1 (large) and D2K2 (medium) construction companies (active members) in their ten administrative regions was 607. Given that the number of construction companies was a little above 600, the entire population was used (census sampling) (Israel, 2009). However, 43 of the contractors declined to participate when contacted; hence, the total sample size of large and medium-size contractors used was 564 as shown in Table 1.

Table 1
Selected Contractors

SN	Region	Population	Target Population	Respondents
1	Greater Accra	120	117	95
2	Ashanti	75	73	56
3	Volta	65	63	51
4	Central	55	52	43
5	Eastern	52	54	41
6	Brong Ahafo	50	48	35
7	Northern	38	38	22
8	Upper West	65	35	15
9	Upper East	57	55	10
10	Western	30	29	7
Total		607	564	375

3.3 Data Collection and Analysis Methods

Data were collected through structured questionnaires distributed to all the 564 medium and large-size construction firms registered with the Association of Building and Civil Engineering Contractors of Ghana (ABCECG). Senior site managers were the primary respondents due to their expertise in the operations of their respective firms (Tengan et al., 2014). The questionnaires were distributed via Google Forms and shared through WhatsApp to facilitate



easy access. The data were analyzed using mean, standard deviation, correlation and regression techniques.

3.4 Discriminant Validity of the Constructs

To ensure that each measure reflects only a single construct, discriminant validity was performed by comparing bivariate correlations with reliability coefficients (Gambi et al., 2015). Discriminant validity is established if the bivariate correlations are lower than the reliability coefficients. As displayed in Table 2, this criterion is met for all measures.

Table 2

Discriminant Analysis of the Constructs

Construct	1	2	3	4	5	Cronbach's alpha coefficient
AC	1					0.843
CC	0.538**	1				0.859
HC	0.708**	0.675**	1			0.840
MC	0.779**	0.469**	0.677**	1		0.848
CPP	0.800**	0.689**	0.828**	0.822**	1	0.842

*Notes: N =375; **p <0.01*

IV. FINDINGS & DISCUSSION

4.1 Response Rate

The study collected 375 valid responses, achieving a response rate of 66.5%, which falls within the generally accepted range of 30% to 77% for research conducted in Ghana's construction industry (Kheni, 2008; Ofori-Kuragu et al., 2016).

4.1.1 Demographic Characteristics of Respondents

Table 3 shows that most respondents were males (96%), with 75% holding a bachelor's degree and 11% holding a master's degree. Over 94% had more than five years of experience in their firms, and 92% reported that their firms had been in operation for more than ten years, indicating stability in the construction industry.

Table 3

Demographic Characteristics of Respondents

Characteristics	Frequency	Percentage
Gender		
Male	361	96
Female	14	4
Total	375	100
Educational Qualification		
Masters	41	11
Bachelor's Degree	281	75
Higher National Diploma	53	14
Total	375	100
Work Experience with Company (Years)		
Less than 5	23	06
5 – 10	90	24
11 – 15	146	39
More than 15	116	31
Total	375	100
Company's Operation (Years)		
Less than 10	30	08
10 – 15	225	60
16 – 20	60	16
More than 20	60	16
Total	375	100

4.1.2 Project Performance of the Surveyed Firms

The performance scores for the surveyed firms ranged from 2.55 to 3.60, indicating moderate overall performance as shown in Table 4. The firms performed well in safety and quality but faced challenges in reducing operational costs.

Table 4*Descriptive Statistics of Construction Project Performance of the Surveyed Firms*

SN	Project performance elements	N	Mean	Std	LoKPI
1	Safety of employees	375	3.60	0.62	High
2	Quality of work	375	3.48	0.58	High
3	Productivity	375	3.38	0.45	Average
4	Client satisfaction	375	3.36	0.50	Average
5	Team satisfaction	375	3.25	0.35	Average
6.	Environmental impact	375	2.95	0.42	Average
7.	Delivering of projects on time	375	2.72	0.68	Average
8.	Reduction in operational cost	375	2.55	0.55	Low
	Overall Project Performance	375	3.16	0.52	Average

4.1.3 Organizational Culture Types of the Surveyed Firms

The survey results indicate that most respondents perceived "adhocracy culture" as the predominant characteristic of their construction firms, as shown in Table 5. This culture is defined by its dynamic, creative, and entrepreneurial nature, where employees are encouraged to take risks and be more innovative. Regarding leadership style, many firms follow an adhocracy approach, with leaders focusing on fostering innovation, entrepreneurship, and risk-taking. However, in terms of employee management, the firms tend to adopt a "market culture." This management style emphasizes competitiveness, dedication to hard work, high expectations, and a strong orientation toward achieving goals.

Table 5*Overall Cultural Profiles of the Surveyed Firms*

Culture Profiles	Clan type		Adhocracy type		Market type		Hierarchy type	
	M	SD	M	SD	M	SD	M	SD
1 st (DC)	3.67	0.54	4.12	0.50	3.71	0.53	3.73	0.48
2 nd (OL)	3.83	0.45	4.06	0.52	3.74	0.60	3.98	0.55
3 rd (ME)	3.64	0.52	3.56	0.55	3.96	0.54	3.66	0.58
4 th (OG)	4.15	0.56	4.03	0.50	3.59	0.50	3.59	0.47
5 th (SE)	3.77	0.48	3.74	0.56	3.92	0.54	3.79	0.52
6 th (CS)	3.66	0.60	3.73	0.54	3.61	0.55	3.64	0.49
Average	3.79	0.53	3.87	0.53	3.76	0.54	3.73	0.52

The organizational glue (OG) that holds the respondent construction firms together is clan culture, which emphasizes loyalty, mutual trust, and employee involvement. However, in terms of strategy, these firms lean towards a "market culture," focusing on competition, achieving challenging goals, and excelling in the marketplace. The companies' success is closely tied to an "adhocracy culture," where innovation and uniqueness drive performance. Overall, the firms demonstrated a strong presence of adhocracy culture, followed by clan, market, and hierarchy cultures. This result aligns with the findings of Atuahene (2016) that medium and large-size construction firms in Ghana are often characterized by adhocracy and clan cultures, based on the Competing Values Framework (CVF).

The results also indicated that the surveyed firms are externally focused and flexible. As shown in Table 5, no single culture type dominated, suggesting a blend of different cultural values within the firms. This cultural mix reflects the complexity of their business environment, where different aspects of organizational culture coexist to meet various demands (Willar, 2012).

4.1.4 Effects of OC Types on Construction Project Performance

The regression analysis revealed that market and hierarchy cultures had a significant positive effect on project performance, with market culture showing the strongest influence ($\beta = 0.402$, $p < 0.01$) as shown in Table 6. In contrast, clan and adhocracy cultures did not have a significant effect. This suggests that in Ghana's construction sector, where market competition and regulatory pressures are high, structured and results-driven approaches are more effective than collaborative or flexible approaches.

Table 6*Regression Analysis between OC types and CPP*

Model Summary					
Dependent Variable	R	R-Square	Adjusted R Square	Standard Error	
Performance	0.822	0.805	0.789	1.176	
Analysis of Variance					
Analysis of Variance	Sum of squares	df	Mean Square	F	Significance
Regression	2026.965	4	506.741	366.722	0.000
Residual	355.126	371	1.382		
Total	2382.091	375			
Standard Coefficients					
Variables in Equation	Beta	t	Significance	Collinearity Statistics	
				Tolerance	VIF
Clan	0.169	4.015	0.186	0.485	3.049
Adhocracy	0.209	6.648	0.084	0.362	1.868
Hierarchy	0.282	6.925	0.000	0.275	2.776
Market	0.402	10.032	0.000	0.426	2.868

The collinearity statistics indicate no significant multi-collinearity that could affect the multiple regression results. As shown in Table 6, the tolerance values are above 0.1, and the variance inflation factor (VIF) values are below 10, suggesting no multi-collinearity issues (Hair et al., 2010).

4.1.5 Combined Cultural Clusters and Project Performance

One of the assumptions of the competing values framework (CVF) is that an effective organization will demonstrate a balance across various cultural orientations. Cameron and Quinn (1999) suggest that overemphasis on a single cultural dimension or quadrant can limit an organization's adaptability to diverse environmental demands. This study examined how combined cultural clusters, as defined by Cameron and Quinn's organizational culture model, relate to overall construction project performance. The aim was to determine which contradictory but complementary cultural dimensions yield better overall project outcomes.

To measure these combinations, the average of each constituent cultural score within the clusters was calculated. Correlation analysis was then conducted between these combined cultural scores and the overall project performance score, with results summarized in Table 7. Findings indicate that all four cultural cluster combinations positively correlate with overall project performance at a 0.05 significance level. However, "external focus" and "stability and control" cultures exhibit a stronger correlation with project performance compared to "flexibility and discretion" and "internal focus" cultures.

Table 7*Cluster Analysis - Pearson Correlation of Four Combined OC Clusters and Overall Project Performance*

Construct	Flexible Culture	Stable Culture	Internal Focus	External Focus
Performance	0.638**	0.795**	0.623**	0.784**

Notes: $N = 375$; ** $p < 0.01$

4.2 Discussion

The findings of this study highlight the significant impact of organizational culture types on construction project performance in Ghana. Specifically, market and hierarchy cultures were found to significantly enhance project performance, with market culture exerting the most substantial influence. This suggests that in Ghana's competitive and regulated construction sector, adopting cultures that prioritize client requirements, structured processes, regulatory compliance, and results-oriented strategies is critical for successful project delivery. These findings align with previous studies by Coffey and Willar (2010) and Beyene (2021), which also reported that structured, goal-driven cultures tend to yield better project outcomes in comparable contexts.

The strong influence of market culture is likely attributable to its focus on competition, client satisfaction, and the achievement of specific project goals, which align with the demands of Ghana's construction sector for high performance and strict adherence to timelines and budgets. Similarly, hierarchy culture's emphasis on structure and control enables firms to ensure regulatory compliance in project execution. Together, these cultural orientations allow construction firms to balance external demands with internal consistency, fostering adaptability in Ghana's complex regulatory environment.

In contrast, the limited influence of clan and adhocracy cultures suggests that their collaborative and innovative



attributes are less suited to the Ghanaian construction industry's current requirements for market competition, structure, predictability, and regulatory compliance. While clan and adhocracy cultures emphasize teamwork, flexibility, and innovation, these traits may be less effective in a sector where stability and adherence to standards are paramount. This finding is consistent with Coffey and Willar (2010) and Beyene (2021), who noted that collaboration-focused clan cultures do not necessarily lead to better outcomes in highly regulated industries. However, it contrasts with studies by Thomas et al. (2002) and Arditi et al. (2017), which reported positive impacts of clan cultures on quality and project timeliness. These differences may be attributable to variations in operating environments and strategic priorities across different regions and firms.

Additionally, the analysis revealed a strong correlation between project performance and a combined focus on external pressures, such as client demands and market competition, alongside stability-oriented cultural values. This balance enables firms to effectively manage external expectations while maintaining internal control, which is particularly important in Ghana's regulatory and client-demand-driven construction sector.

While market and hierarchy cultures are the most effective for Ghana's construction industry, certain projects may still benefit from the collaborative and innovative attributes of clan or adhocracy cultures. Tailoring cultural strategies to the unique demands of specific projects can enhance flexibility without sacrificing stability. Moreover, implementing training programs that educate employees on the importance of aligning with the firm's cultural values can foster cohesion and improve overall project performance.

V. CONCLUSION & RECOMMENDATIONS

5.1 Conclusion

This study underscores the critical role of organizational culture in driving the success of construction projects in Ghana. The findings reveal that market and hierarchy cultures positively impact project performance, emphasizing the significance of client-focused approaches, structured processes, and adherence to regulatory compliance.

5.2 Recommendations

For optimal performance, it is recommended that construction firms in Ghana adopt a balanced hybrid cultural approach that aligns external demands, such as client and market expectations, with internal stability and control. While market and hierarchy cultures demonstrated greater effectiveness than adhocracy and clan cultures in this context, the study highlights the potential benefits of integrating elements from clan and adhocracy cultures in specific project context. For example, certain projects may benefit from the collaborative environment fostered by clan culture or the innovative problem-solving emphasized by adhocracy culture. This adaptability allows firms to tailor their strategies to the unique requirements of different projects, ultimately enhancing overall project performance.

The findings of this study have practical implications for construction managers and policymakers. Construction firms should prioritize cultivating a market-hierarchy cultural profile to improve project outcomes. Future research should expand its focus to include small-sized construction firms, providing a more comprehensive understanding of how organizational culture influences firms of varying sizes. Moreover, investigating the impact of organizational culture on specific project outcomes could offer deeper insights into its role in driving performance within the construction sector.

REFERENCES

- Alla, M. Y., & Hassan, A. S. (2017). Organization culture impact on Sudanese construction project performance. *Journal of Engineering and Computer Science (JECS)*, 18(3), 1–12.
- Arditi, D., Nayak, S., & Damci, A. (2017). Effect of organizational culture on delay in construction. *International Journal of Project Management*, 35(2), 136–147. <https://doi.org/10.1016/j.ijproman.2016.10.018>
- Atuahene, B. T. (2016). *Organisational culture in the Ghanaian construction industry* (Master's Thesis, Kwame Nkrumah University of Science and Technology, Kumasi, Ghana).
- Barney, J. B. (1991). Firm resources and sustained competitive advantage. *Journal of Management*, 17(1), 99–120.
- Bentil, E., Nana-Addy, E., Asare, E. K., & Fokuo-Kusi, A. (2017). The level of existence and impact of cost and time overruns of building construction projects in Ghana. *Civil and Environmental Research*, 9(1), 36–46.
- Beyene, F. W. (2021). Assessment of the effect of organizational culture on project performance: In case of ASER construction PLC (Master's dissertation). Addis Ababa University, Ethiopia.
- Cameron, K. S., & Quinn, R. E. (1999). *Diagnosing and changing organizational culture: Based on the competing values framework*. San Francisco, CA: Addison-Wesley.
- Cameron, K. S., & Quinn, R. E. (2011). *Diagnosing and changing organizational culture: Based on the competing values framework* (2nd ed.). New Jersey, USA: John Wiley & Sons.

- Coffey, V., & Willar, D. (2010). Construction performance and organizational culture. In *CIB World Congress 2010: Building a Better Tomorrow*.
- Fiedler, F. E. (1964). A contingency model of leadership effectiveness. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (pp. 149–190). Academic Press.
- Gambi, L. D. N., Boer, H., Gerolamo, M. C., Jørgensen, F., & Carpinetti, L. C. R. (2015). The relationship between organisational culture and quality techniques, and its impact on operational performance. *International Journal of Operations and Production Management*, 35(10), 1460–1484. <https://doi.org/10.1108/IJOPM-12-2013-0563>
- Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2010). *Multivariate data analysis: A global perspective* (7th ed.). London: Pearson.
- Israel, G. D. (2009). Determining sample size (1–5). University of Florida. Institute of Food and Agriculture Sciences, Extension. Retrieved March 15, 2021, from Glenn-D.-Israel_Determining-Sample-Size.pdf
- Kheni, A. N. (2008). *Impact of health and safety management on safety performance of small and medium-sized construction businesses in Ghana* (PhD thesis, Loughborough University).
- Kpegba, P. M. (2018). *Analysis of rework in construction projects in Ahanta West District and Takoradi Metropolitan Assembly* (Master of Technology dissertation, University of Education, Winneba, Ghana).
- Nguyen, L. H., & Watanabe, T. (2017). The impact of project organizational culture on the performance of construction projects. *Sustainability*, 9(5), 781. <https://doi.org/10.3390/su9050781>
- Ofori-Kuragu, J. K., Badu, E., & Baiden, B. K. (2016). Critical success factors for Ghanaian contractors. *Benchmarking: An International Journal*, 23(4), 843–865. <https://doi.org/10.1108/BIJ-03-2014-0018>
- Osman, A. M., Liu, Y., & Wang, Z. (2023). Influence of organizational culture on construction firms' performance: The mediating roles of innovation and marketing capabilities. *Buildings*, 13(2), 308.
- Tengan, C., Appiah-Kubi, E., Anzagira, L. F., Balaara, S., & Kissi, E. (2014). Assessing driving factors to the implementation of project monitoring and evaluation (PME) practices in the Ghanaian construction industry. *International Journal of Engineering Research & Technology (IJERT)*, 3(2), 173–177.
- Thomas, R., Marosszeky, M., Karim, K., Davis, S., & McGeorge, D. (2002). The importance of project culture in achieving quality outcomes in construction. In *Proceedings of IGLC-10*, Gramado, Brazil.
- Willar, D. (2012). *Improving quality management system implementation in Indonesian construction companies* (PhD thesis, Queensland University of Technology).