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INFLUENCE OF ORGANISATIONAL CULTURE ON PROJECT PLANNING: A COMPETING VALUES PERSPECTIVE IN GHANAIAN CONTEXT

Ackon, F.[1], Kheni, N. A.[2] and Mensah, J. V.[3]
[1]*Department of Vocational and Technical Education, University of Cape Coast, Ghana.*
[2]*Department of Construction and Wood Technology Education, Akenten Appiah-Menka University of Skills Training and Entrepreneurial Development, Ghana.*
[3] *School for Development Studies, University of Cape Coast, Ghana.*
[1]*frank.ackon@ucc.edu.gh*
[2]*kalkanam@yahoo.com*
[3]*john.mensah@ucc.edu.gh*

ABSTRACT

Purpose: This study empirically examined the influence of organisational culture (OC) on construction project planning.

Design/methodology/approach: A descriptive cross-sectional survey approach was used to obtain quantitative data from 375 large and medium-scale construction firms in Ghana. The data were analysed using descriptive and inferential statistics such as mean and standard deviation, confirmatory factor analysis, Pearson correlation and multiple regression model.

Findings: The results revealed that the market type of organisational culture had the highest significant positive influence on project planning, followed by clan, hierarchy, and adhocracy cultures. The results further revealed that a high level of project planning is positively associated with the combined cultural clusters represented by the dimensions of "stability and control clusters".

Research limitation: This study focused on only large and medium-scale construction organisations; however, data from small-scale construction organisations will be needed to strengthen and widen the scope of applicability of the findings.

Practical implication: It is evident that the practice of adhocracy culture in the surveyed firms provides a low significant effect on project planning efforts. It is, therefore, recommended that more emphasis be placed on market culture as it had proven to have a higher significant influence on construction project planning.

Social implication: This study contributes to management and public policy by identifying organisational cultural types that significantly contribute to achieving effective project planning.

Originality/value: Organisational culture in the context of project planning initiatives has received very little attention in project management research. This research significantly contributes to the research stream by providing empirical evidence of the influence of OC on project planning, highlighting which OC types are more or less likely to improve project planning efforts,

Keywords: *Construction firms. cultural influence. organisational culture. project planning. values.*

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INTRODUCTION

In recent times, the construction business environment has become very competitive requiring contractors to adopt efficient management strategies in project delivery to achieve high project performance and sustainable competitive advantage. Literature suggests that effective project planning coupled with strong organisational culture (OC) are critical project success factors for successful project management (Chiluwal & Mishra, 2018; Naeem, Khanzada, Mubashir & Sohail, 2018). Effective project planning enhances project performance, which results in project success. Yazici (2011) contends that although there are improving techniques for project planning in organisations, most projects still fail to meet performance criteria. Ineffective project planning results in frequent changes to the project's scope, which causes delays and increases project costs (Akinradewo, Aigbavboa, & Akinradewo, 2019).

Prior literature has established the effects of OC types on project performance (Coffey & Willar, 2010; Yazici, 2011). Nevertheless, OC has received little attention in project management research in the context of project planning. This study makes a substantial contribution to the research stream by providing empirical evidence of the relationship between OC and project planning, highlighting which OC types are more or less likely to enhance project planning efforts.

THEORIES UNDERPINNING THE STUDY

Concept of Project Planning

Project planning is crucial for effective project management and provides a significant contribution to project success. According to Tam, da Costa Moura, Oliveira and Varajao (2020), project planning can be defined as the establishment of formal plans to complete the project with set goals including the requirements and objectives of the project. Construction management scholars maintain that project planning in construction is very important as it establishes the overall framework on how the construction project will be executed to the expectation of the stakeholders (Akinradewo et al., 2019; Alchammari, Ali. & Alshammare, 2021). Project planning efforts include: functional requirements definition, development of technical specifications, and project management processes and procedures (Dvir, Raz & Shenhar, 2003). Table 1. shows contractor project planning strategies adapted from Dvir, Raz & Shenhar (2003) and Ramanayaka (2013).

Table 1: Contractor projects planning strategies extracted from literature

No.	Potential contractor project planning strategies	References
1	Adoption of collaborative programming	Ramanayaka (2013);
2	Client requirements are properly defined and documented	Dvir, Raz & Shenhar (2003); Ramanayaka (2013)
3	Review of past construction projects that have been implemented with similar scope.	Ramanayaka (2013);
4	Concept of the project is well defined	Dvir, Raz & Shenhar (2003); Ramanayaka (2013)
5	Design review for constructability (Operational requirements, technical specifications,	Ramanayaka (2013); Dvir, Raz & Shenhar (2003);

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	human engineering specifications and logistics support are well defined and properly documented)	
6	Definition of roles and tasks of team members	Ramanayaka (2013); Dvir, Raz & Shenhar (2003)
7	Project requirements are well defined to project team	Ramanayaka (2013); Dvir, Raz & Shenhar (2003)
8	Allow reasonable buffer/ safety time	Ramanayaka (2013)

Organisational Culture

Organisational culture is defined as the shared values, beliefs, assumptions and practices that guide an organisation (Cameron & Quinn, 2011).

Competing Values Framework Theory

Numerous cultural frameworks have been proposed in literature, including that of Cameron and Quinn (1999), Denison and Spreitzer (1991), and Hofstede (1984). However, Cameron and Quinn's (1999) Competing Values Framework (CVF) seemed appropriate for investigating the OC in the context of project planning. The CVF has been validated in Ghana (Atuahene, 2016), and evaluated in terms of project performance (Yazici, 2011). The Dominant Characteristics (DC), Organisational Leadership (OL), Management of Employees (ME), Organisational Glue (OG), Strategic Emphasis (SE), and Criteria of Success (CS) elements of CVF allow for the assessment of dominant cultural characteristics of an organisation. It describes an organisation's culture in terms of internal/external focus, flexibility and differentiation/stability and control. Four quadrants are formed by these two dimensions, representing four different types of cultures namely: Clan, Adhocracy, Hierarchy, and Market. The features of the four cultural types, according to Cameron and Quinn (2011) are:

- Clan culture: This culture is recognised as a "collaborative" culture. It places emphasis on the internal environment. It has characteristics similar to the external family type. Clan type organisations encourage participation in decision-making, teamwork, commitment to employees, knowledge sharing, loyalty and mutual trust; and sensitive to their customers.
- Adhocracy culture: This culture is also known as "developmental" culture. Adhocracy culture organisations are externally focused, dynamic, entrepreneurial, risk-taking and creative environment; and promotes adaptation and innovation
- Hierarchical culture: This culture is commonly referred to as "bureaucratic" culture. It places emphasis on stability and control. It is a structured environment; promotes cooperation, efficiency, consistency and conformity. Formal rules, policies, and procedures guide what people do.
- Market culture: This culture is also known as "competitive" culture. It focuses on the external environment and values competitiveness and achievement, stability, high reputation, high productivity, customer satisfaction and goal clarity.

The CVF suggests that different OC types may have different influences on project planning efforts depending on the needs of the external environment and the strategic orientation of the organisation. Figure 1 shows the dimensions of CVF adapted from Cameron and Quinn (2011).

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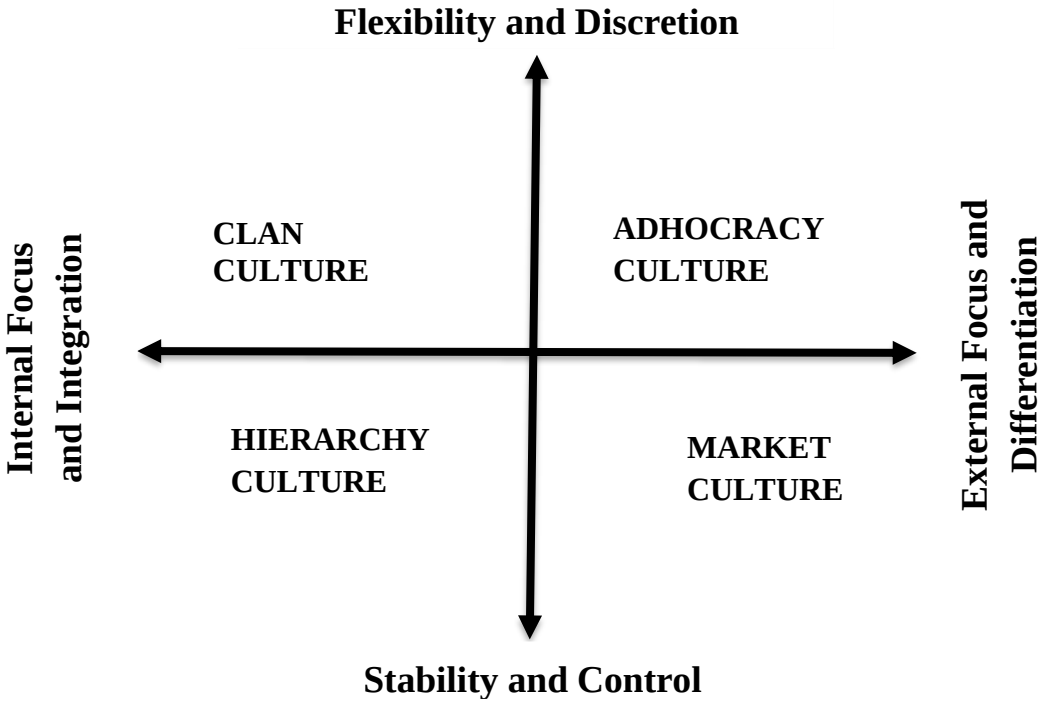

Figure 1: Competing Values Framework: Adapted from Cameron and Quinn (2011)

Conceptual Framework

Clan, adhocracy, market, and hierarchy cultures were the independent variables, while aggregated project planning strategies were the dependent variable as shown in Figure 2. The direction of the arrows shows how the independent variables (OC types) directly affect the dependent variable (project planning).

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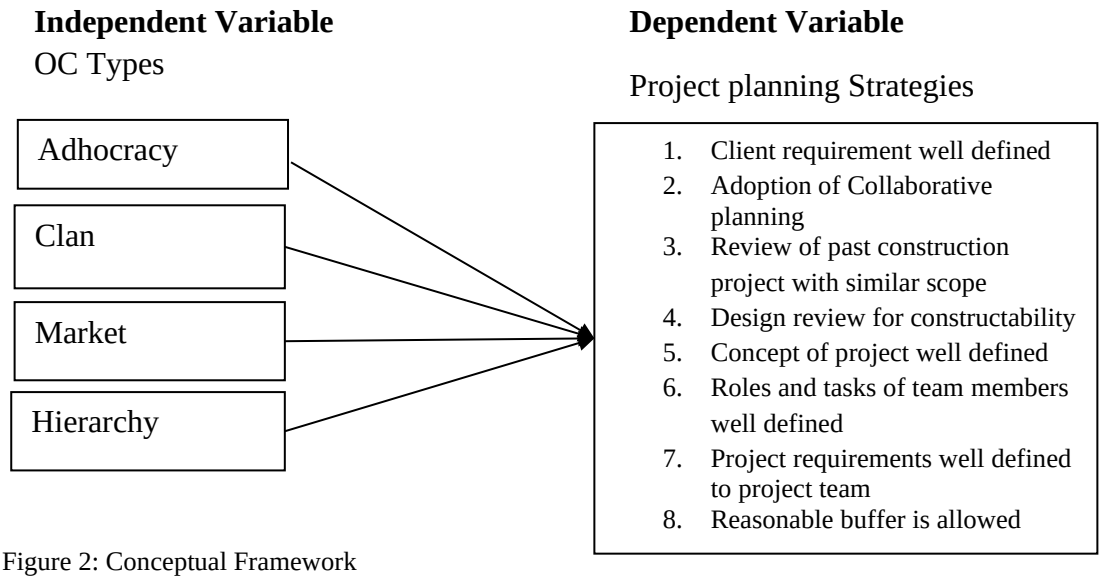

Figure 2: Conceptual Framework

METHODOLOGY

The questionnaire used was in three sections. Section A contained the respondents' demographic information. Section B comprised OC scale adapted from Cameron and Quinn (1999) "Organisational Culture Assessment Instrument (OCAI)". Section C consisted of 8 items scale of project planning strategies adapted from Dvir, Raz & Shenhar (2003) and Ramanayaka (2013). Some of the scale items were "My organisation values collaborative planning"; and "Concept of project is always well defined". All the responses were scored on a 1–5 point Likert scale (strongly disagree - strongly agree). The questionnaire survey was distributed via WhatsApp google form link. The target respondents were senior site managers of the surveyed firms. Large and medium-scale contractors were purposively selected because they had professional experts who could speak on the themes of this research. The data were analysed using descriptive and inferential statistics such as mean and standard deviation, confirmatory factor analysis, Pearson correlation and multiple regression model. The Cronbach alpha reliability of the project planning effort was 0.815.

Confirmatory Factor Analysis of the OC Dimensions

The validity and reliability of the OC dimensions were assessed using confirmatory factor analysis (CFA). The results showed that all the factor loadings exceeded 0.70; indicating a convergent validity (Creswell, 2013). All the composite reliability values exceeded 0.80; demonstrating a high level of internal consistency for the latent variables. Furthermore, each AVE value was greater than 0.70, proving the convergent validity (Obeidat, 2016; Hair et al., 2018). Table 2 and Table 3 summarise the CFA outcomes.

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Table 2: Model fit indices compared to criteria

Indices	Criteria	Estimated Results
$(\frac{x^2}{df})$	< 3	2.617
RMSEA	< 0.08	0.066
TLI	> 0.9	0.905
GFI	> 0.9	0.914
IFI	> 0.9	0.917
CFI	> 0.9	0.926

Table 3 displays the Factor loadings, Cronbach alpha, Composite reliability, and Average variance extracted (AVE) for the variables.

Table 3: Properties of the OC Measurement Model

Construct and Indicators	Factor loadings	Cronbach alpha	Composite reliability	AVE
Clan Culture		0.859	0.850	0.797
Personal or family-like place	0.846			
Mentoring, facilitating, nurturing	0.898			
Teamwork and participation	0.898			
Loyalty and mutual trust	0.940			
Human development	0.917			
Sensitive to customers' needs	0.856			
Adhocracy		0.843	0.826	0.739
Dynamic and entrepreneurial place	0.805			
Entrepreneurship, innovating	0.833			
Individual risk-taking, innovation	0.870			
Commitment to innovation	0.813			
Acquiring new resources	0.912			
Having the most unique products	0.917			
Hierarchy Culture		0.848	0.834	0.758
Controlled and structured	0.876			
Coordinating, organizing	0.861			
Security of employment and conformity	0.844			
Formal rules and policies	0.854			
Permanence and stability	0.910			
Efficiency	0.877			
Market		0.840	0.820	0.726
Results oriented	0.728			
No-nonsense, aggressive	0.837			
Competitiveness and high demands	0.829			
Emphasis on goal accomplishment	0.885			
Competitive and achievements focus	0.901			
Winning in the marketplace	0.919			

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RESULTS AND DISCUSSION

This section covers the demographic information of the respondents, organisational culture of the surveyed firms, influence of OC types on project planning, and the association between combined cultural clusters and project planning strategy.

Demographic Information of the Respondents

Out of a total of 564 questionnaires distributed, 375 usable responses were received representing a response rate of 66.5%. Two hundred and eighty-one of the respondents (75%) possessed Bachelor's degree, 53 (14%) possessed Higher National Diploma; while 41 (11%) possessed Master's degree. About 94% have had 5 years or more work experience with their organisations. This implies that the respondents have wide experience with their organisations and are therefore likely to be conversant with their companies' cultures. About 92% of the respondents said their companies had been in the construction business for more than 10 years. All the respondents' companies were members of ABCECG, at the top two registration levels (large-scale (44%), and medium-scale (56%).

Organisational Culture of the Surveyed Firms

Overall, the respondents perceived that the dominant characteristics (DC) or the core value of the surveyed construction firms is most represented by "adhocracy culture" as shown in Table 4. The core value of "adhocracy culture" in this first dimension is dynamic, creative and entrepreneurial. People are willing to take risks. About the style of the organisation leader (OL), most of the surveyed firms are strongly adhocracy oriented. The leaders exemplify entrepreneurship, innovation and risk taking. The management style used to manage employees (ME) is market culture which is characterised by hardworking, competitiveness, high demands and results oriented. The organisation glue (OG) that holds the respondent construction firms together is clan culture with an emphasis on loyalty, mutual trust, and participation. The companies' strategic emphasis (SE) is market culture, with emphasis on competitive actions and achievement, hitting a stretch target and winning in the market place. The criterion of success (CS) of the companies as perceived by the respondents was the adhocracy culture that believes that their success lies in having the most unique or innovative product. Overall, adhocracy culture was the predominant culture type of the surveyed firms, followed by clan, market and hierarchy cultures.

Table 4: Cultural profiles of the surveyed firms

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

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According to Table 4, the surveyed firms did not have a single dominating culture type. This demonstrates the presence of various cultural values in the firms surveyed. The possible explanation for the presence of the incongruent culture might be the dynamic business environment of the surveyed firms, which necessitates varied emphases in many areas of Organisational Culture (Willar 2012).

Influence of Organisational Culture on Project Planning

Multiple regression analysis was employed to test the influence of organisational culture variables on the set of project planning strategies. The regression was carried out between organisational types (clan, adhocracy, market, and hierarchy) as the independent variables and project planning approach as the dependent variable. Table 5 summarises the regression analysis results. The R^2 adjusted value was 0.701. This indicates that the four OC types in the model (clan, adhocracy, market and hierarchy) can explain about 70 percent of the variation in construction project planning efforts. The F-ratio was 220.323 ($p < 0.01$). With a beta coefficient of 0. 304 ($p < 0.01$), market culture had the most significant influence on project planning efforts. Clan culture had the second highest influence, with a beta value of 0.286 ($p < 0.01$), followed by hierarchy culture ($p < 0.01$) and adhocracy culture ($p < 0.01$). The VIF and tolerance values demonstrated no multicollinearity between the variables, with VIF values less than 10 and tolerance values more than 0.10. (Hair et al., 2018).

Table 5: Summary of Regression Analysis between OC Types and Project Planning

Dependent Variable	**R**	**R-Square**	**Adjusted R Square**	**Standard Error**
Project Planning	0.839	0.704	0.701	0.950

Analysis of Variance

Analysis of Variance	**Sum of Squares**	**Df**	**Mean Square**	**F**	**Significance**
Regression	795.200	4	198.800	220.323	0.000
Residual	334.757	371	0.902		
Total	1129.957	375			

Standard Coefficients

Variables in Equation	**Beta**	**T**	**Significance**	**Collinearity Statistics**	
				Tolerance	**VIF**
Market	0.304	7.027	0.000	0.378	4.901
Clan	0.286	6.611	0.000	0.345	2.648
Hierarchy	0.204	5.650	0.000	0.612	4.633
Adhocracy	0.182	3.073	0.039	0.482	3.074

Association between Combined Cultural Clusters and Project Planning Strategy

Management scholars contend that within organisations, there are a number of tensions and contradictions that, depending on how they are managed, can affect the organisation's effectiveness (Denison, Hoojiberg & Quinn, 1995; Denison, Cho & Young, 2000). The combined cultural clusters and their relationship with overall construction project planning efforts were examined to ascertain which of the combined competing dimensions of the Cameron and Quinn OC model performed better on construction project planning. The average of the constituent cultural scores was used to calculate the measurement of the cultural cluster combinations. The correlation was then investigated between them and the overall project

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planning score. The results of the correlation test are summarised in Table 6. From the results, it can be seen that all four combinations of the cultural clusters correlated positively with the overall project planning score at 0.05 significant level, but comparatively, "stability and control" and "internal focused cultures" correlated more significantly than "flexibility and discretion" and "externally focused" firms.

Table 6: Correlation Results of the Cultural Clusters and Project Planning

Construct	Flexibility Culture	Stable Culture	Internal Focus	External Focus
Project Planning	0.684	0.785	0.752	0.708

Discussion

The objective of this study was to empirically examine the influence of organisational culture on project planning. This study found that all four OC types based on CVF significantly positively influence project planning. More specifically, a stronger effect was found between market culture and project planning than for any of the other cultural types. This finding is not surprising. The possible explanation is that market-oriented firms are externally oriented, customer focus, goal-oriented and value clarity of objectives to team members (Cameron & Quinn, 2011). These features are more likely to stimulate the adoption of a collaborative planning strategy (involvement of key stakeholders such as client/consultant, financiers, sub-contractors and suppliers in project planning) to ensure client/project requirements are properly defined and documented. Similarly, their customer focus orientation would urge them to review designs for constructability so that operational requirements, technical specifications, human engineering specifications and logistics support are well defined and properly documented; It is also, likely that their goal-oriented and clarity of objectives features help ensure that the concept of the project is well defined to the project team; also, it is plausible the roles and responsibilities of the team members are clearly defined.

The results also revealed a significant influence of clan culture on project planning efforts. This finding is not surprising as clan culture is characterised by a family-like atmosphere, loyalty, teamwork, participation and cooperation in decision-making (Cameron & Quinn, 2011). These characteristics are associated with a willingness to share tacit knowledge, enhancement of information flow and decision-making component among team members within an organisation which contribute to effective project planning (Suppiah & Sandhu, 2011; Dharmayanti, Coffey &Trigunarsyah, 2012).

Hierarchy culture also had a significant influence on project planning efforts. This result is also not surprising. According to Cameron and Quinn (2011), hierarchy-oriented firms value cooperation, conformity and technically oriented "leadership" characteristics. Arguably, these characteristics are likely to stimulate the adoption of a collaborative planning strategy to ensure client requirements are well defined and documented; review of past projects implemented with similar scope to ensure project requirements (operational requirements, technical specifications, human engineering specifications and logistics support) are well defined and properly documented. More so, formal procedures guide the employees, hence, it is plausible

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that the concept of the project is always well defined, with the roles and tasks of the team members also clearly specified.

Finally, the adhocracy culture also had a significant positive influence on project planning efforts. This finding is also not surprising. The possible explanation is that the adhocracy culture is flexibility oriented and externally focused. It is characterised by a dynamic, entrepreneurial and creative environment with high prominence on innovativeness and resource acquisition (Prajogo & McDermott, 2011; Cameron & Quinn, 2011). The flexibility characteristic of an adhocracy firm may likely stimulate freedom of participation, communication and willingness to share information associated with a collaborative planning strategy. It is also plausible that their external focus and customer satisfaction drive ensure that client and project requirements are properly defined and documented.

CONCLUSION AND RECOMMENDATION

The results revealed that market culture significantly influences project planning efforts more than the other cultural types based on the Competing Values Framework (CVF). Also, a high level of project planning is positively associated with the dimensions of "stability and control clusters".

The implication of the findings was that the current adhocracy cultural orientation of the surveyed firms appeared to have a low significant effect on project planning efforts. As a result, it is recommended that contractors/construction managers of the surveyed firms promote market culture characteristics in their firms to create a more favourable environment for project planning efforts. This research contributes to the management and public policy by identifying specific cultural types in construction organisations that significantly influence project planning efforts. Additionally, it contributes significantly to the research stream by empirically revealing the cultural types that are more or less likely to support project planning efforts.

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