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IMPACT OF PROJECT ENVIRONMENTAL FACTORS ON NON-FINANCIAL PERFORMANCE OF SOFTWARE PROJECTS IN SRI LANKA

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ABSTRACT

In most projects, project managers believe project success is a matter of meeting the outcome of a few criteria. Mainly project budget, project schedule, project performance, and end-user satisfaction. The goal of project performance is to improve the project's success. In software projects, not only financial factors; there are several non-financial performance aspects that can have a significant impact on overall project success. Further, elements in the project environment can have a significant impact on the project's performance. This research examines the influence of project environmental factors on non-financial project performance in the Sri Lankan software industry. This study presents a comprehensive analysis of the impact of project environmental factors on non-financial project performance in software projects while investigating the mediating effect of strategic decision-making relating to the Sri Lankan software industry. This research is based on a Descriptive Research Design and uses a Quantitative Correlational Research Approach. Data collection is done through the Mono Method. The research employs surveys as the primary data collection method, utilizing questionnaires to gather information from over 150 project team members across various professional areas and levels in software project teams. All participants will receive the same set of questions, and data will be collected through both email and direct contact. Additionally, secondary data was sourced from journal articles, blogs, publications, websites, and government reports. Gathered data examined via Statistical Package for Social Science Software to find the relationship between independent variables, dependent variables, and mediating variables denoted under the conceptual framework and hypothesis of this research study. A systematic review of the literature draws a multidisciplinary approach to build the foundation, addressing the key project environmental dimensions and project non-financial performance factors addressing the mediating effect

of strategic decision-making. Findings from diversified sources in this study emphasize the importance of strategic decision-making and aligning project environments with goals for sustainable success.

1. Introduction

Success in projects is often determined by meeting criteria such as budget, schedule, performance, and end-user satisfaction. In most projects, project managers believe project success is a matter of meeting the outcome of a few criteria, mainly project budget, project schedule, project performance, and end-user satisfaction (de Wit, 1988). However, research on project success often overlooks the point of what constitutes project success. The goal of project performance is to improve the project's success. (Anantatmula, 2015). Project performance can be measured not only financially but also through non-financial measures such as customer satisfaction and team motivation.

The external or outside environment of projects in the software industry is made up of various factors that are beyond its control, including economic, technological, political, social, and environmental factors. These external factors can have a significant impact on a software project's capability to achieve the desired project objectives and goals and to make strategic decisions. (Oguz, 2022). Project environmental factors drive project performance, and strategic decisions significantly influence these project environmental factors. In terms of the software project, the external environment of an organization, or the facts of the external environment, are the most influential elements in how managers make strategic decisions. (Alhawamdeh & Alsmairat, 2019). In the software project context, project decision-making is an evaluation of suitable options and selecting the best one.

1.1. Problem Statement and Objectives

Numerous research papers concentrate on software project performance. The majority of the study publications alternate between agile and waterfall project management techniques. In agile project management research studies, they discuss how to improve project performance using agile principles (Muhammad et al., 2021). However, there is a research gap regarding the impact of project environment on project success. Decision-making is a crucial component of project management, and it plays a significant role in determining project success. There is a research gap concerning the consequences of the project environment on the liaison between an applied project methodology and its components on project success (Joslin & Müller,

2016).

Effective strategic decision-making helps project managers identify potential problems and develop solutions, impacting resource management and stakeholder management. Decision-making enables project managers to identify and mitigate risks early in the project. In most of the projects, project managers use the RAPID (recommend, agree, perform, input, and decide) decision-making approach (Rogers & Blenko, 2006). Effective strategic decision-making enables project managers to identify potential problems and develop solutions that ensure effective resource and stakeholder management. This is also essential for project success, and many projects fail due to inefficient decisions. The multinational software industry in Sri Lanka faces challenges with ineffective strategic decision-making. This research aims to explore how project strategic decisions impact project success and provide empirical evidence to evaluate and verify findings.

Project performance is a key issue in project management, one of the most debated topics, and there is disagreement about how success is determined (Crawford et al., 2002). Project Performance is much more complicated than merely meeting cost, time, and outcome goals. Whether a project is considered a success, or a failure mostly depends on how satisfied the client is with the final product (Pinto & Slevin,1988). Non-financial project performance refers to the assessment of a project's success based on criteria other than financial metrics. The research study only focused on non-financial project performance in the research, as it's something that was not captured by many researchers, and focusing on non-financial performance metrics gives comprehensive project performance.

The criteria and success elements they devised to quantify the project's success rate included success aspects such as communication, cooperation, and project leadership, which he stated as being critical in carrying out successful initiatives (Cserháti & Szabó, 2014). Previous research on project management primarily focuses on people factors, neglecting the impact of environmental factors on non-financial performance. Project performance can be measured by using different factors in different phases of the project. (Muller and Turner, 2007) This thesis aims to evaluate and analyze the impact of software project environmental factors on non-financial performance in the Sri Lankan software industry.

To narrow down the process of accomplishing the primary goal of this thesis study, the author introduced the listed thesis objectives:
Objective 1: To explain the impact of project environmental factors on non-financial project performance in the SL software industry.
Objective 2: To explain the moderating effect of project strategic decision-making towards the non-financial project performance in the SL software industry.

2. Literature Review

2.1. Non-Financial Project Performance

Project performance can be mainly categorized into two dimensions in a software project context, production or project performance and process performance (Kaufmann & Wagner, 2017). This research article discusses the project performance aspect. Project performance can be evaluated using different types of indicators in different industries (Akanni et al., 2015). A project's performance can be measured not only by its financial measures but also through on-financial performance measures (Muller and Turner, 2007). These non-financial performance measures include customer satisfaction, employee satisfaction, stakeholder involvement, and considering environmental sustainability. The study investigates the effect of selected key project environmental elements moderated by strategic decision-making on non-financial project performance related to the software industry and will be using the term project referring to software projects in the research context. Project performance can be measured through; 1. Project Management Success and 2. Product Success (Baccarini, 1999). Project management success/performance focuses on management processors, their accomplishments with triple constraints (schedule, scope, and budget), and project objectives and practices followed by the project managers. Whereas product success relates to the product, service, or the result of the project. Project performance is a key issue in project management, one of the most debated topics, and there is disagreement about how success is determined (Crawford et al., 2002). The non-financial aspect of the project's performance is usually measured by the degree to which the project achieves its goals. In other words, it is the effectiveness of projects satisfying customer and business requirements through quality products while keeping the employees also in a satisfied state. Therefore, this article is only limited to the non-financial performance of software projects in the Sri Lankan software industry.

2.2. Sri Lankan Software Industry

There are many industries in the modern global economies. The software industry is not just another industry that belongs to dozens of industry classifications. The software industry is a sub-category of IT or the information technology industry. The information technology industry has three subsectors: software, hardware, education, and training (Infoline, 2000). During the 1980s, the US software industry started booming, however, the higher cost factors made it difficult to boom the industry without any support. As a result, they seek personnel from low-wage Asian countries including India and Sri Lanka. They initially used the outsourcing concept and later, they established their child companies that do the operational work in the Asian region (Samaratunga, 2014).

Sri Lankans had a prosperous agricultural economy in the early days, including paddy, tea, many other agricultural important spices, and rubber. With globalization, the Sri Lankan economy is gradually transitioning from an industrial economy to a knowledge-based economy (Pushpakumara, 2017). Due to many facts South Asian region's software industry rapidly blooming (Nicholson & Sahay, 2003). During the past decade, significant growth has been illustrated in the enrollment of software establishments in the Sri Lankan software industry. There are many favorable factors for the expansion of the software industry some of them can be a talented skilled workforce, a low-cost labor force compared to the European market, and a favorable business environment with fewer restrictions to entry.

2.3. Project Leadership

In the project leadership context, the factors related to human resources mostly affect the performance and motivation of the employees in the project (Chaudhry et al., 2012). Great team leaders always give credit to all team members. With good project leadership given the opportunity to grow and develop, employees and project team members are treated as valuable, standards of excellence are pursued, leadership drives change, sensible risk-taking is encouraged, and employees are encouraged to think in unique and independently with an adaptive culture (Rogers, 2019). Industries like IT, consulting, and construction have transitioned to project-based concepts, where teams are forced to achieve their targets within a specific time frame. Effective leadership is essential in achieving project objectives and goals. Studies have shown that project leadership significantly impacts project success, as it ensures well-managed projects, clear communication, and conflict resolution. Project leadership is a crucial factor in project management. Industries including IT, consulting, and construction moved to the project-based concept (Sydow, 2014).

2.4. Project Team Culture

The Project team culture is a combination of different individuals from different skill backgrounds who collaborate to achieve a common set of goals. In teams, each team member is mutually accountable for the results (Katzenbach & Smith, 1993). Project team culture is the organizational culture in the software project industry. As a result, Project team culture is a collective of individuals from diverse skill backgrounds working together to achieve common goals (Kotter and Heskett, 1992). It acknowledges the hard work and contributions of everyone within the organization and provides a holistic view of what and how to accomplish targets. Project team culture is the organizational culture in most software projects. Project team culture is basically all about the values, beliefs, and attitudes of the project team members

(Carol & Vasavi, 2016). Both external and internal project communication play equally important roles in the project environment context (Ramsing & Kerzner, 2009).

2.5. Project Communication Atmosphere

Project communication is a critical component of project success, involving the exchange of data, ideas, and feedback between team members, stakeholders, and customers. Over 90% of project time is spent on communication, which is the most critical aspect of managing projects. Communication is also one of the most critical factors in project management (Lindberg et al., 2021). A negative communication atmosphere, characterized by distrust, hostility, and defensiveness, can hinder effective communication, and erode team morale and cohesion. It always gives negative results to the project outcome (Jahanyfard et al., 2020). A positive communication atmosphere is essential for project success.

2.6. Project Accomplishments and Challenges

Challenges and obstacles that can impact project success include requirements changes, scope creep, inadequate resources, and team conflicts (Elragal & Al-Mudimigh, 2022). Studies have shown that effective project management practices can contribute to project accomplishments and success (Elragal & Al-Mudimigh, 2022). Effective communication ensures alignment of goals, stakeholder engagement, and conflict resolution. Project planning and risk management ensure clear goals, scope management, and potential risks are identified and addressed. Key success factors include effective communication, stakeholder management, project planning, and risk management. On the other hand, challenges and obstacles that can impact project success include requirements changes, scope creep, inadequate resources, and team conflicts (Elragal & Al-Mudimigh, 2022).

2.7. Strategic Decisions Making

Decision-making is the act of choosing between alternative courses of action (Flynn & Williams, 1999). It helps organizations align with objectives, define project scopes, manage risks, and foster innovation for competitive advantage. It is important to reveal the major determining factors of the decision-making effectiveness of virtual software development and then its impact on the project's success (Prasanna et al., 2012). Project managers play a central role in aligning initiatives with business goals and allocating resources effectively. Strategic decision-making influences project performance by deciding the way the projects are handled. Strategic decision-making is a data-driven approach to achieving strategic objectives within the framework of execution doctrine (Bhushan et al., 2004). The process of strategic decision-making

is a critical factor in determining project performance in the software industry. Effective strategic decision-making requires a structured decision-making process and careful analysis of data and information.

2.8. Adoptive Management Theory

Adoptive management theory goes hand in hand with Project Management. Adoptive management theory is also known as environmental assessment and management. Adoptive management theory emphasizes the importance of organizational flexibility and adaptability to effectively respond to changing environments (RIST et al., 2012). The conceptual framework of this thesis is created based on the adoptive management theory to enhance awareness of how a resource and system operate to meet organizational goals as software projects are highly uncertain in nature. This theory emphasizes accountability and clarity in decision-making. A conceptual framework, illustrated in Figure 1, was built based on the conceptualization described in this part as well as the comprehensive literature research.
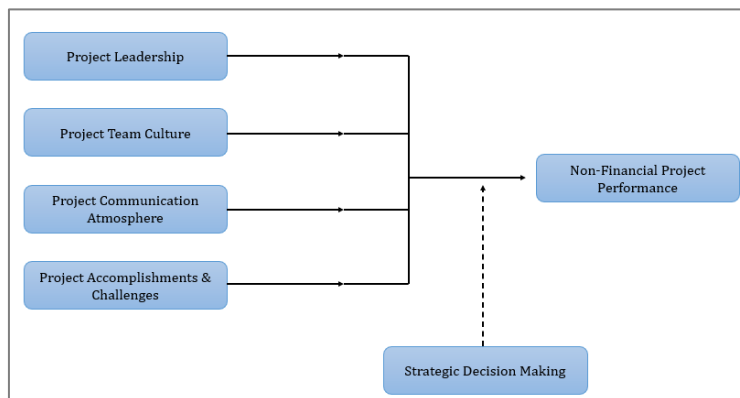

Figure 1: Conceptual Diagram.

3. Methodology

The concept of project success was discovered by many researchers during the past decades. The following hypotheses were developed for this study based on the scientific evidence found in literature and on the theoretical framework. According to the conceptual framework developed the hypothesis identified in this research study is listed and summarized in Table 1.

Table 1: Hypotheses of the Study.

Identifier	Hypothesis
H1	Project Leadership (PL) Has a Significant Impact on Project Non-Financial Performance
H2	Project Team Culture (PTC) Has a Significant Impact on the Project Non-Financial Performance

H3	Project Communication Atmosphere (PCA) Has a Significant Impact on Project Non-Financial Performance
H4	Project Accomplishments and Challenges (PAC) Have a Significant Impact on the Project Non-Financial Performance
H5	Strategic Decision-Making Has a Significant Moderating Impact

This research is based on a descriptive research design and uses a Quantitative Correlational Research Approach. The conceptual framework of research is designed here with the variables that we identified as project success factors that derive through strategic decision-making by referring to previous research studies in a similar research context. The target population of this research study includes all the project team members in the Sri Lankan software industry.

3.1. Sample
To measure the impact of project environmental factors on project performance in the Sri Lankan software industry, the researcher selected five software development organizations within the western province of Sri Lanka to cover the small, medium, and large-scale software companies. The sample size of this thesis analysis is only bounded to 150 project team members from selected five software development companies in the Western Province of Sri Lanka. This sampling plan covers 30 project team members from each company and convenient sampling was adopted. The primary data collection technique was through surveys where a questionnaire was used with a five-point Likert scale.

3.2. Measures
Project Leadership, Project Team Culture, Project Communication Atmosphere, Project Accomplishment and Challenges (Independent variables), and Non-financial Project Performance (Dependent variable) were measured using a 5-point Likert scale. The questionnaire was initially tested using a pilot survey. Then the final questionnaire was distributed. The data analysis was conducted through SPSS software.

4. Results/Analysis and Discussion
Two hundred survey questionnaires were dispersed between project teams in the five selected software development companies equally, with 30 questionnaires per basis. However, only 147 (76.5%) were received. In this research study, the content validity of variables was carried out to ensure confirmation that the variables used in this research methodology are relevant to the research concept and to measure the accuracy and credibility of the research findings (Smith et al., 2019). Exploratory Factor Analysis (EFA) carried out by Direct

Obliging rotation approach with a delta value of 1 is used. During the factor analysis, any measures with factor loadings less than 0.5 were not found which means independent dependent and moderating variables are valid. In the dependent variable, all seven factors attained the 0.5 bare minimum requirements when all factor loadings are regarded as reliable/valid. Measures with factor loadings of Moderating Variable factors which are greater than 0.5 Cronbach's Alpha value of all the moderating variables and independent variables were greater than 0.7 and Cronbach's Alpha value of all the dependent variables is greater than 0.8 which means internal consistency is acceptable in this research study.

Table 2: Descriptive Statistics for Independent Variable.

Statistics				
	PLFin	**PTCFin**	**PCAFin**	**PAC**
N Valid	147	147	147	147
Mean	3.8163	3.7347	3.7320	3.8068
Median	4.0000	3.8000	3.8000	3.8000
Mode	4.33	3.40	3.60	3.60
Std. Deviation	.73939	.63727	.64765	.63307
Minimum	2.00	2.20	2.00	2.40
Maximum	5.00	5.00	5.00	5.00

Descriptive statistics of all independent variables Table 2, where Leadership has the highest standard deviation, followed by Communication Atmosphere and Team Culture. As per Table 6, the dependent variable, project performance the mean value is 3.6006 with a standard deviation of 0.74154. Further, the moderating variable, strategic decision-making with a mean value of 3.4408 and a standard deviation of 0.6323.

Table 3: Descriptive Statistics for Dependent and Moderating Variables.

Statistics		Statistics		
Strategic Decision		**Project Performance**		
N Valid	147	N	Valid	147
Mean	3.4408	Mean		3.6006
Median	3.6	Median		3.7143
Mode	3.00	Mode		4
SD	0.63243	SD		0.74154
Minimum	2	Minimum		2
Maximum	5	Maximum		5

The following characteristics are identified based on the correlation analysis of this research study's independent, dependent, and moderating variables.

1. The highest correlation value was achieved between Project Leadership and Project Performance with the value of 0.836.

2. The lowest correlation value was identified between Project Communication Atmosphere and Project Performance with the value of 0.742 which represents a moderate positive correlation.

3. Project Team Culture and Project Performance achieved 0.790 which represents a moderate positive correlation.

4. The value of 0.802 between Project Accomplishments and challenges with Project Performance represents a strong positive correlation.

Table 4: Correlation Analysis Summary.

No	Variable	Correlation Value	Level of Correlation
1	H1	.836	Strong Positive Correlation
2	H2	.790	Relatively Strong Positive
3	H3	.742*	Relatively Strong Positive
4	H4	.802	Strong Positive Correlation
5	H5	.754*	Relatively Strong Positive

The correlation coefficient suggests that H1, H2, H3, H4, and H5 are interconnected and interdependent at a statistically significant level of 0.001. This study analyzed the relationship between project leadership, team culture, communication atmosphere, project accomplishments and challenges, and project strategic decisions and culture. Hypothesis testing was conducted to confirm the positive relationship between these variables. The results showed a significant positive relationship between project leadership and project performance, with a correlation coefficient beta value of 0.836. The study also found a positive relationship between project team culture and project performance, with a correlation coefficient beta value of 0.790. The study also found a positive relationship between project communication atmosphere and project performance, with a beta value of 0.742. The study also found a significant moderate relationship between project strategic decisions and culture and project performance. The study also found that out of 147 respondents, 94 were male, confirming the positive relationship between project leadership, team culture, communication atmosphere, and project performance.

4.1. Impact of Environmental Factors and Strategic Decision-Making on Project Performances

The adjusted R square value for Project Leadership (independent variable) and Project Performance is 0.697 which means 69.7% of the variance in the dependent variable was identified by Project Leadership. It is observed that a significant proportion of variability in the dependent variable as it is more toward 100% beta value for this relationship is

0.836 at the significance level of .001 which denotes a strong positive relationship statistically significant.

As denoted in Table, the R square value for Project Team Culture (independent variable) and Project Performance is 0.622. This relationship is at the beta value of .790 at the .001 significance level, which suggests a statistically significant strong positive relationship. The study predicts that 62.2% of the variance in the dependent variable was identified by Project Team Culture.

The adjusted R square value is 0.548 between Project Communication (independent variable) and Project Performance where the beta value stands at .742 at the .001 significance. This illustrates a statistically significant variance in Project Performance caused by Project Communication.

The Relationship between Project Accomplishments and Challenges (PAC) and Project Performance has an R square value is 0.640 which denotes PAC can cause up to 64% variance in Project Performance. This relationship has a beta value of 0.802 at the significance level of 0.001, which makes it a statistically significant positive relationship.

As denoted in Table, the regression model between Project Strategic Decision (moderating variable) and Project Performance has an R square value of 0.566 which also means 65% of the variance in the dependent variable was identified by Project Strategic Decision. It explains that there is a moderating impact of project strategic decisions on project performance. This relationship provides a beta value of .754 at a .001 significance level.

4.2. Multiple Regression

Table 5: The Relationship between Moderating Variable, Independent Variable, and Dependent Variable – Model Summary.

Model	R	R2	Adjusted R2	Std. Error of Estimate	Change Statistics			
					R2 Change	F Change	df1	df2
1	.882 a	.777	.771	.35580	.777	122.878	4	141
2	.892 b	.795	.788	.34239	.018	12.264	1	140

a. Predictors: (Constant), PACFinal, PCAFinal, PLFinal, PTCFinal
b. Predictors: (Constant), PACFinal, PCAFinal, PLFinal, PTCFinal, SDMFinal

Table 5 shows a summary of the regression model between the moderating variable, independent variables, and the dependent variable. The correlation coefficient value here ranges from -1 to 1 which means the absolute value R itself represents a stronger relationship. The R square value is 0.777 which also means 77.7% of the variance in the

dependent variable was identified by independent variables.

Table 6: The Relationship between Moderating Variable, Independent Variables, and Dependent Variable – ANOVA.

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	62.223	4	15.556	122.878	<.001b
	Residual	17.850	141	.127		
	Total	80.072	145			
2	Regression	63.660	5	12.732	108.608	<.001c

For the ANOVA model to be significant, it should show a significant value of less than 0.05. Based on Table 6, in Model 1, the F-statistic is 122.878, and the p-value is very low (0.001), indicating that the regression model is very significant. When compared to the sum of squares owing to residual variation (17.850), the sum of squares due to regression is 62.223. The regression model accounts for a significant share of the total variability. The regression model in Model 2 is likewise significant, with an F-statistic of 108.608 and an extremely modest p-value (0.001). The regression total of squares is 63.660, and the residual variation sum of squares is 16.412. The p-values in both situations are quite low, indicating that the models are very significant. This implies that strategic decision-making has a strong moderating effect on project environmental elements and non-financial project performance. The strong F-statistic values and a significant sum of squares owing to regression imply that the independent variables in the models explain a significant amount of variability in the dependent variable.

Table 7: The Relationship between Moderating Variable, Independent Variables, and Dependent Variable – Coefficients.

Model		Unstd. Coeff.		Std. Coeff.	t	Sig	Tol.	VIF
		B	Std. Error	Beta				
1	(Constant)	-.37	.193		-1.961	.052		
	PCAFinal	.182	.072	.159	2.529	.013	.741	.208
	PLFinal	.464	.076	.463	6.138	<.001	.836	.459
	PTCFinal	-.010	.116	-.008	-.082	.935	.791	-.007
	PACFinal	.410	.106	.348	3.880	<.001	.803	.311
2	(Constant)	-.443	.186		-2.379	.019		
	PCAFinal	.164	.069	.143	2.367	.019	.741	.196

In Model 1, the unstandardized coefficient (B) for Project Communication (PC) is 0.182, meaning that a one-unit increase in PC is

anticipated to increase the dependent variable by 0.182 units when other predictors remain constant. The standardized coefficient (Beta) is 0.159, and it shows the change in the dependent variable in standard deviation units for a one-standard-deviation increase in PC in standard deviation units. Project Leadership (PL) has an unstandardized coefficient of 0.464, which means that a one-unit increase in PL corresponds to a 0.464 rise in the dependent variable. 0.463 is the standardized coefficient (Beta). The unstandardized coefficient for Project Team Culture (PTC) is -0.010, indicating that each unit increase in PTC has very little negative influence on the dependent variable. The unstandardized coefficient for this predictor is 0.410, and the standardized coefficient (Beta) is 0.348. In Model 2, PC the unstandardized coefficient is 0.164, and the standardized coefficient (Beta) is 0.143. For Project Leadership, the unstandardized coefficient of this predictor is 0.398, and the standardized coefficient (Beta) is 0.397. PTC has an unstandardized coefficient for PTC is 0.335, and the standardized coefficient (Beta) is 0.286. The coefficient for Project Achievements and Challenges (PAC) is -0.268, and the standardized coefficient (Beta) is -0.227. Strategic Decision Making (SDM) is the predictor variable that is only applicable to Model 2. It has a standardized coefficient (Beta) of 0.415 and an unstandardized coefficient of 0.487. Therefore, according to statistics in both cases, the significance of each coefficient is represented by the t-values. A higher absolute t-value suggests that the coefficient is statistically significant.

5. Discussion

The Summary of Research Discoveries and Discussions: Relevant to the Thesis Objectives

Research Objective 1: To explain the impact of Project Environment Factors in software development projects towards the non-financial project performance in the Sri Lankan software industry. The independent variables' mean values range from 3 to 3, with Project Leadership having the highest value at 3.8163 and Project Communication Atmosphere at 3.7320, all within the agreed point in the Sri Lankan context. Research Objective 2: To explain the moderating effect of Project Strategic Decision-Making towards the non-financial project performance in the Sri Lankan software industry. The moderating variable's mean value is 3.4408, slightly above neutral but within an acceptable range in the Sri Lankan context. The Sri Lankan software industry should focus on strategic decision-making to enhance the non-financial performance of software projects.

The Summary of Research Discoveries and Discussions: Affiliated with Correlation and Coefficient Analysis

The correlation analysis summary shows that various factors have a

significant impact on non-financial project performance, with project leadership having the highest positive correlation at 0.836, followed by project accomplishments and challenges at 0.802, indicating a strong positive relationship. Project team culture also shows a rather large positive connection of 0.790, whereas project communication atmosphere has a somewhat lower but still significant correlation of 0.742. Overall, these findings indicate that good leadership, a great team culture, strong communication, and managing accomplishments and problems are all crucial for improving non-financial project outcomes.

Table 8: Correlation Analysis Summary.

Correlated Variables	Correlation Value	Level of Correlation
H1 – Project Leadership Has a Significant Impact on the Non-Financial Project Performance	.836	Strong Positive Correlation
H2 – Project Team Culture Has a Significant Impact on Non-Financial Project Performance	790	Relatively Strong Positive Correlation
H3 – Project Communication Atmosphere Has a Significant Impact on Non-Financial Project Performance	.742*	Relatively Strong Positive Correlation
H4 – Project Accomplishments and Challenges Have a Significant Impact on the Non-Financial Project Performance	.802	Strong Positive Correlation

The correlation analysis summary shows that various factors have a significant impact on non-financial project performance, with project leadership having the highest positive correlation at 0.836, followed by project accomplishments and challenges at 0.802, indicating a strong positive relationship. Project team culture also shows a rather large positive connection of 0.790, whereas project communication atmosphere has a somewhat lower but still significant correlation of 0.742. Overall, these findings indicate that good leadership, a great team culture, strong communication, and managing accomplishments and problems are all crucial for improving non-financial project outcomes.

The Summary of Research Discoveries and Discussions: Affiliated to Test Hypothesis

The study examines the relationship between project leadership, project team culture, project communication atmosphere, project achievements and challenges, and strategic decision-making towards project non-financial performance. The results show a strong positive relationship between project leadership and project performance, with a p-value of

less than 0.001. This suggests that project leadership competencies directly impact project performance. The study also finds a strong positive relationship between project team culture and project performance, with a p-value of less than 0.001. The study also finds a strong positive relationship between project communication atmosphere and project performance, with a p-value of less than 0.001. The study concludes that effective communication is crucial for a successful project. The study also suggests that strategic decision-making plays a significant role in project success or failure.

6. Conclusion and Implications

This research investigation accomplished a thorough investigation of the impact of Project Environmental Factors on the Non-Financial Performance of software projects and identified research gaps by examining the Sri Lankan software industry. Many research articles examine the fact that project environmental factors directly impact project performance. This research also investigates the moderating impact of strategic decisions and non-financial project performance. This research study furthermore encourages us to analyze more environmental factors and non-financial project performance in the literature. Many researchers identified only the financial aspect of the project performance but in this research, try to determine the hidden aspect of project performance. The research study also carried out a scientific analysis with the collected data through surveys and questionnaires which helped the author to illustrate the strong connection between project environmental factors and non-financial project performance. In the research literature, previous research articles referred to by the author also support proving the link between project performance and project environmental factors. The final chapters of the research study conclude that the findings from the research study help to conclude the fact that project environmental factors have a direct impact on the non-financial performance of software projects and drive the strategic decisions to have a moderating impact on project environmental factors as well considering the non-financial project performance in Sri Lankan software industry. Furthermore, future researchers could do comparable studies in many sorts of sectors, such as the software industry, and employ the project concept with many variables. The outcomes could be served by project managers and clients of specific projects. This can serve as the foundation for a new project in the same framework.

Considering the boundaries of the research study, the author proposes the following research opportunities for future studies to overcome these limitations to generalize the findings of new research topics in a different and better way in the future. The first suggestion for future studies is that they can expand their sample to include more

coverage with software organizations. As this research study is only limited to the Colombo western province region, another research can cover the whole industry with a random sampling method with a large sample size. It will be more accurate to measure the performance of the industry. Focus on the non-financial and financial project performance. This research study only focuses on the non-financial performance of the software industry. In other research, it can be analyzed that both financial and non-financial aspects of the project performance would be good to carry out. Furthermore, future researchers can combine qualitative and quantitative methodologies. In other words, they can employ a combination of methodologies to obtain a more detailed picture of project performance, and project environmental factors would be an excellent opportunity to do so.

Acknowledgment

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