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An Analysis of Integration Management in Developing Project Performance-Evidence from Pakistan

Muhammad Aqib Shafiq[1], Saira[2], Nosheen Khan[3], Ali Danyal[4]

[1] *Ph.D Scholar Department of Business Administration, Ghazi University Dera Ghazi Khan*
Email: mastoiaqib@gmail.com
[2] *Ph.D Scholar Department of Management Science, Sukkur IBA University, Email: saira.phdmgts22@iba-suk.edu.pk*
[3] *Ph.D Scholar Department of Business Administration, Ghazi University Dera Ghazi Khan*
Email: nosheenk646@gmail.com
[4] *MSBA Scholar Department of Business Administration, Ghazi University Dera Ghazi Khan,*
Email: alidanyaldgk@gmail.com

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ABSTRACT

Objective*: The purpose of this research was to ascertain how management integration influenced project performance. Integration of management contributes to project success. investigating the impact of the management integration dimensions on project performance and gauging the significance of the management integration elements.*

Methodology*: Data were collected by a standardized survey questionnaire by employing the convenience sample method.*

Results*: Shown that although the other criteria have a negligible association, there is a favorable relationship between the company's integration with its consumers.*

Conclusion*: Controlling the integration aspects effectively boosts project performance and success chances.*

Corresponding Author's Email: mastoiaqib@gmail.com

INTRODUCTION

The term 'integration' states to the direction/synchronization between procedures. Similarly, integration management one among the popular significant components of project management, as it addresses every facet of a project Demirkesen and Ozorhon, 2017; Riaz et al. (2013), Sanghera, (2019). Integrated project management ensures effective coordination of project activities. Another study by Masuin and Latief (2019) has highlighted that integration refers to a thoughtful procedure of establishing a supremacy arrangement that sorts managing

the needs of key stakeholders more systematic. The same study has defined integrated management as a fundamental component of the system architecture.

Project integration assures that the project tasks are properly coordinated, which has a beneficial influence on the progress of the project (Masuin et al., 2019). Consequently, it is crucial to fully comprehend how integrated management affects project outcomes so that project leaders may benefit from the advantages of effectively linked project operations (Masuin, Latief and Zagloel, 2019; Sanghera, 2019). Given the crucial roles that integration plays in project management, this study has created a thorough model that attempts to demonstrate how integration and project management success are closely related. The goal of this study is to determine the potential connection between integrated management and project management performance and quantify it using the suggested measures.

The previous research empirical suggested management integrations that are the key extent where previous research literature and scholars have defined it as the multidimensional construct that includes supply chain integration through which the companies combine with some other supply chain participants in order to succeed the efficiency and effectiveness, flow of the material with more efficiency, cheaper price Zhao et al. (2008), mostly firms are integrating their supply chain in order to achieve the speed and flexibility Zhao et al. (2008), in order to understand the supply chain integration there is resource based view and transaction cost that contribute to this study. (Porters, 1980) model of value chain is the root of supply chain concepts. (Wheelwright and Clark, 1992) pinpointed that achievement of integration (e.g. among designing and manufacturing departments) fit highly depend upon the top management support. (Pagell, 2004) argued that support from top management is required for enhancing the communication level in the organizational internal and external environment and the implementation of the activities of human resource development with the help of top management leaders in order to achieve various boundary integration, customer integration as well as the integration with suppliers.

LITERATURE REVIEW

Supply Chain Integration

Supply chain integration is the procedure of integrating clients and vendors continuously, as well as creating methods for clients, vendors, and project stakeholders to share expertise (Kang, and Choi, 2017; Arshad et al., 2020). As a result, supply chain integration has been thoroughly researched in prior project management investigations.

Project Charter Development

Before starting a project, establish the project documents and provide the project coordinator authorization. Following the approval of the conceptualization stage, the project received official approval (Mark and Lurie, 2018; Hayat et al., 2022). The Project Charter also permits project managers to commit corporate resources to project-related activities.

Integration of Changes

The process of integrating changes include evaluating and accepting each change proposal for the project, carrying out the required adjustments, changing the project's management plan and project documentation, and incorporating all changes into the project's final results. According to Caldas and Gupta (2017), Shafiq et al., (2020), change may have a significant

influence on the project budget and plan. Insufficient project plan integration, they said, might lead to unclear priorities, ambiguous requirements, and unclear limits, which could lead to modifications, remakes, and disruptions (Vieira, et al., 2019; Faisal & Iqbal, 2018). Additionally, Bergamin and Braun's (2018) research demonstrates the value of merging design and construction methodologies to improve project management.

Staff Integration

Employee integration includes employee support to obtain the tools and technology integration and management-driven integration necessary for successful project execution (Bergamin, and Braun, 2018). Malleuve-Martínez, et al, (2018) noted that among the tools for integrating groups, collaborations, cross-functional workgroups, and project-level team training opportunities include management effectiveness. Also, Lazarev et al, (2017), and Roshana et al. (2010), means that integration can improve teamwork efficiency. The research further made the point that integration is preferred for effective working groups. Worker or group integration is intensively inspected in project management research.

Knowledge Integration

Knowledge integration is the exchange of recent and previous information in addition to incorporation of all data into the system for the distribution of expertise currently in place between all investors and project participants. (Zhou, Deng, Hwang and Ji, 2020; Kousar & Shafiq, 2005). Facts demonstrate that a crucial component of long-term success is incorporating information and concepts into project portfolio management. Demirkesen, and Ozorhon, (2017) simplified the need for knowledge and information exchange between the interdependent subsystems involved in the integration and the information is a component factor for fruitful integration. Malleuve-Martínez, et al, (2018) also shows that construction knowledge is needed to integrate construction methods and design methods. The integration of the successful project, organization, and group process knowledge is also considered the core element of integrated project management and project management performance (Vieira, et al, 2019).

Process Integration

Process integration refers to the well-organized sequence of all activities and the well-developed logical relationship between processes (Bergamin, and Braun, 2018). Research shows that the integration process can promote the creation of value in terms of staff integration and task integration. A study by OKIURA, and KUBO, (2016) found that concurrent product design and manufacturing can improve quality and reduce costs. LAZAREV, et al, (2017)'s goal of research is to integrate the development of new goods or procedures with budget, timeframe, and performance effectiveness. Waheed, et al, (2019) cites Project integration management includes system integration. Most researchers examined process integration into account and highlight the significance of process integration in project management performance.

The literature also shows that efficient change management and leadership are required closely related to the successful implementation of organizational plans. OKIURA, and KUBO, (2016) also shows that change management is the ability of the organization to manage changes based on customer needs. Therefore, we pay special attention to managing the project integration, because it is very important to effectively integrate the changes in the deliverables of the current project (Waheed, et al, 2019; Nosheen & Danya, 2017). Previous

research has also shown the importance of integrating changes in current project conditions for successful project management.

The Connection Between Integration Management and Project Performance

Integration management and performance are closely related, and several research suggests that utilizing linked methodologies may increase project achievement and efficiency (Yuliadi and Nugroho, 2019; Kumar & khan 1997). However, even though interaction should be seen as a fundamental element affecting several other project network elements, relationship integration, and software integration are still included in this research (Batselier & Vanhoucke, 2017; Ali & Asim 2013). The building sector still has subpar project performance due to the division of labor among many stakeholders and sub processes. When managing complex projects, which may be difficult, it helps to build professionals to grasp the logic behind project integrity and employ essential indicators for project assessment (Demirkesen and Ozorhon, 2017; Iqbal et al. 2017). Construction experts must understand value, describe, and simulate the components that affect building activity (Ferreira et al., 2017; Hayyat et al. 2015). As a result, a conceptual framework is required that more accurately captures the factors influencing the building industry.

The integration of communicating data with customers and suppliers may lead to deeper shared learning, which can increase operational efficiency, according to new research by Wang, Kang, Childerhouse, and Huo (2018). Organizational integration of information, processes, and strategies is stressed by Shahzad et al. (2016) because it improves project performance via skills developed in previous roles and general organizational innovation. According to Ali et al. (2018), integrating information and processes may enhance the effectiveness of projects and organizations. However, as good project visualization and planning are crucial (Ferreira et al., 2017; Mastoi, 2000), integration is a significant element in successfully organizing a project. It is feasible to conclude that integration has a clear and immediate impact on the project's success because, as previously discussed in the study above, integration is directly tied to the basics and project management sectors (Demirkesen and Ozorhon, 2017; Ramzan et al. 2014). This research resolves this disparity by developing a framework that describes the core ideas behind integration and performance. The framework aims to show how integrated management and project management positively impact performance depending on the perspectives of contracting firms.

H1: Supply Chain Integration has a positive impact on project performance

H2: Willingness to receive and transfer knowledge with customers has a positive impact on project performance.

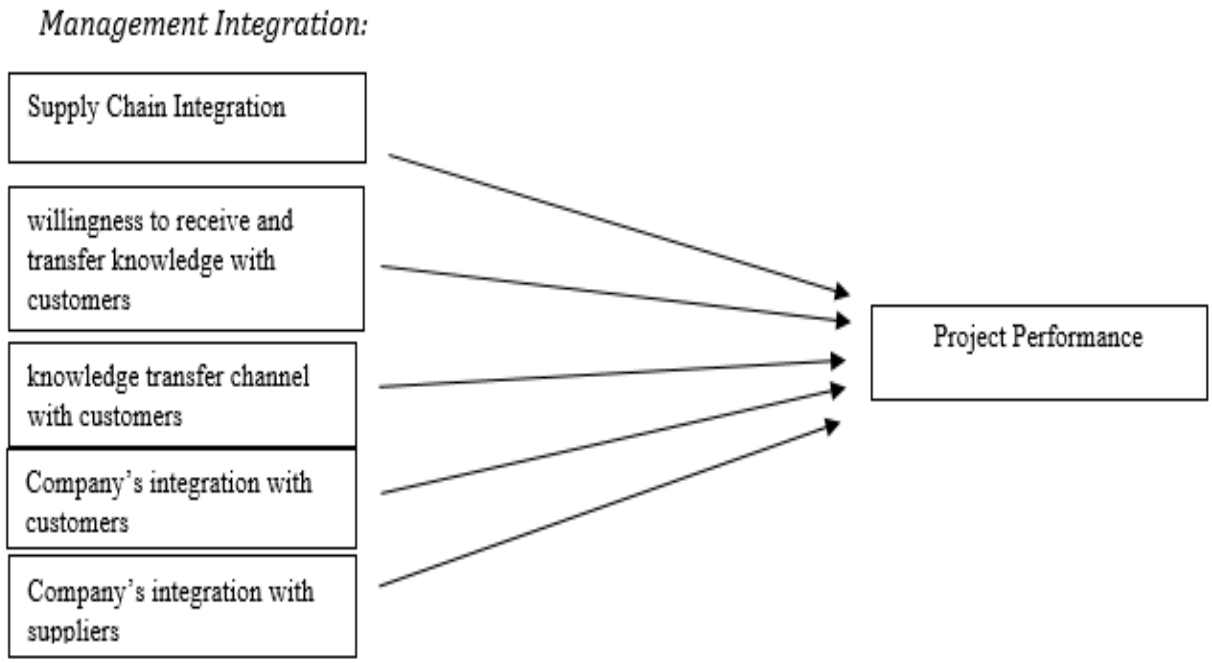
H3: knowledge transfer channel with customers has a positive impact on project performance.

H4: Company’s integration with customers has a positive impact on project performance.

H5: Company’s integration with suppliers has a positive impact on project performance.

H6: Management integration has positive relationship with project performance.

Research Framework



This is the framework of the present study used to see the impact of Management Integration factors on project performance. There are the five dimensions of the Management Integration variable representing the conceptual framework of the variables.

RESEARCH METHODOLOGY

Due to the positivist methodology that was employed to review and verify the specific hypothesis, the current study is quantitative in character. The information is collected and evaluated using a variety of mathematical and statistical methods in a quantitative way to find responses to the study hypotheses. Cross-sectional time was considered in this research. In contrast to a longitudinal time horizon, a cross-sectional time frame collects information from participants only once.

The information was gathered via a self-administered questionnaire and self-distribution, which is the most efficient method of gathering information because it aids in reducing sampling error. The participants were given enough time to complete the survey questionnaire. During the data gathering process, the investigator adhered to all moral values. This study's concentrate on the individual construction industry in Pakistan made individuals the element of investigation.

The sample size for this investigation was determined using a random non-probabilistic convenience sampling method. This research depended on the Roscoe's Rule of Thumb to choose an appropriate sample size because a description of the community was not easily accessible. This rule specifies that a sample size of between 30 and 500 participants is appropriate for conducting a quantitative study. In order to conduct this research, a study sample of 94 individuals was chosen.

After the procedure of gathering the information was finished, the SPSS 26 program was used to extract, compile, filter, and interpret data. To reach findings about the viability of the investigation questions, a variety of information processing methods and techniques were used. Reliability, data normality, ANOVA, and correlation analysis were some of these

methods.

RESULTS

Demographics Analysis

The findings disclose the gender of the study's contributors. The investigation included 15 female contributors, making up 100% of the population, while 79 male individuals made up 84.01% of the total sample.

The distribution of the respondents' individual ages is shown in the findings. 46 respondents, it can be seen, ranged in age from 18 to 24. They made up 44.94% of the overall study population, cumulatively. 35 respondents, or 86.17 percent of the population overall, were between the ages of 25 and 34. 13 individuals ranged in age from 35 to 44. It is clear that the majority of responses were among the ages of 18 and 24.

It is clear from the contributors' expertise that 57 responders had experience ranging from 0 to 3 years. The participants who had this experience made up 60.64% of the total sample. 24 respondents had experience ranging from four to five years. This experience level group's member made up 86.17 percent of the total given frequency. 11 individuals varied in experience from 7-9 years, while 2 people had experiences of 10 years or more.

The findings provide a summary of the respondents in the study's various qualifications. 29 individuals, or 30.85% cumulative frequency of the sample size, had less than 12 years of schooling as can be seen. 34 people, or 67.02% cumulative frequency of the whole sample, had bachelor's degrees. Out of the entire sample, 31 people had academic qualifications of 18 or higher. It can be seen that most of the participants had college degrees and had been in school for 14 to 16 years.

Reliability Results

The six variables in the current study are: Project performance, Company's Integration with Customers (CIC), Company's Integration with Suppliers (CIS), Knowledge Transfer Channel with Customers (KTC), Supply Chain Integration (SIC), Willingness to Receive and Transfer Knowledge with Customers (TK), and (PP). The SIC comprises of 04 components, each of which has a Cronbach Alpha value of 0.823, as can be shown. TK has five items with a Cronbach Alpha of 0.807 in total. Cronbach Alpha values ranged from 0.602 for KTC, 0.673 for CIC, 0.764 for CIS, and 0.824 for PP. KTC had three things with a Cronbach Alpha of 0.602, CIC had three items with a Cronbach Alpha of 0.673, and CIS had five items with a Cronbach Alpha of 0.764. As it can be observed, every Alpha (a) value is higher than 0.60. Consequently, it may be inferred that all of the investigation instrument are quite trustworthy, allowing for the execution of additional assessments.

Table 1-Reliability Test

Variables	No. of Items	Cronbach Alpha (α)
SCI	04	0.823

TK	05	0.807
KTC	03	0.602
CIC	03	0.673
CIS	05	0.764
PP	06	0.824

Correlation Analysis

To ascertain whether there are any relationships between the parameters or not, correlation examination is utilized and with its sign of negative (-) or positive (+), it also tells us about the track of the relationship between the variables. The association between variables is positive and have significant relationship at 90 percent level of significance. None of the variable is linear function of any other variables. The association between supply chain integration (SIC) and willingness to acquire and share knowledge with customers (TK) may be seen to be extremely significant at a 99% level of confidence. The association has a modest degree of correlation and a good path.

Table 2 Correlation Test

	SIC	TK	KTC	CIC	CIS	PP
SIC	1	.777**	.659**	.654**	.733**	.810**
TK	.777**	1	.775**	.787**	.793**	.794**
KTC	.659**	.775**	1	.776**	.765**	.811**
CIC	.654**	.787**	.776**	1	.764**	.757**
CIS	.733**	.793**	.765**	.764**	1	.893**
PP	.810**	.794**	.811**	.757**	.893**	1

Regression Analysis

The table below is about the model summary of Supply chain integration. The variance of supply chain integration item SIC1 is 1.302 that shows how much there is the variation of item from mean value. SIC2 variance value is 0.887, SIC3 variance value is 0.813 whereas for SIC4 variance values is 0.858. Additionally, tables show the average values and sum of the items.

Table 3. Summary SIC

SUMMARY				
Groups	**Count**	**Sum**	**Average**	**Variance**
SIC1	94	344	3.659	1.302
SIC2	94	358	3.808	0.887
SIC3	94	348	3.702	0.813
SIC4	94	352	3.744	0.858

H1: Supply Chain Integration has a favorable impact on project performance

The Above table is an ANOVA table that is used to find out the goodness of fit test in regression analysis. Here the p-value is greater than 5 percent that is P value is 0.758 that demonstrate that there is no meaningful relationship between the supply chain integration and project performance. So based upon the results we reject null hypothesis H1.

Table 4 SIC ANOVA Test

ANOVA						
Source of Variation	**SS**	**df**	**MS**	**F**	**P-value**	**F crit**
Between Groups	1.138298	3	0.379433	0.392963	0.75814	2.628903
Within Groups	359.1915	372	0.965569			
Total	360.3298	375				

The table below is about the model summary of Willingness to receive and transfer knowledge with customers. The variance of Willingness to receive and transfer knowledge with customer's item TK1 is 0.93 that shows how much there is the variation of item from mean value. TK2 variance value is 1.05, TK3 variance value is 1.13, TK4 variance value is 0.78 whereas for TK5 variance values is 0.89. Additionally, tables show the average values and sum of the items.

Table 5 Summary TK

SUMMARY				
Groups	**Count**	**Sum**	**Average**	**Variance**
TK1	94	357	3.79	0.93
TK2	94	351	3.73	1.05
TK3	94	333	3.54	1.13
TK4	94	361	3.84	0.78
TK5	94	348	3.70	0.89

H2: Willingness to receive and transfer knowledge with customers has an advantageous effect on project performance.

The table below is an ANOVA table that is used to find out the goodness of fit test in regression analysis. Here the p-value is greater than 5 percent that is P value is 0.27 that show that there is no any significant relationship between the Willingness to receive and transfer knowledge with customers and project performance. So based upon the results we reject null hypothesis H2.

Table 6 ANOVA TEST TK

ANOVA						
Source of Variation	**SS**	**df**	**MS**	**F**	**P-value**	**F crit**
Between Groups	4.93	4	1.23	1.28	0.27	2.39
Within Groups	447.1	465	0.96			
Total	452.0426	469				

The table given below is about the model summary of. The variance of knowledge transfer channel with customer's item KTC is 0.94 that shows how much there is the variation of item from mean value. KTC variance value is 1.18, whereas for KTC3 variance values is 0.71. Additionally, tables show the average values and sum of the items.

Table 7 Model Summary KTC

SUMMARY				
Groups	**Count**	**Sum**	**Average**	**Variance**
KTC1	94	365	3.88	0.94

KTC2	94	338	3.59	1.18
KTC3	94	338	3.59	0.71

H3: knowledge transfer channel with customers has a favorable effect on project performance.

The table given below is an ANOVA table that is used to find out the goodness of fit test in regression analysis. Here the p-value is greater than 5 percent that is P value is 0.067 that show that there is no any significant relationship between the knowledge transfer channel with customers and project performance. So based upon the results we reject null hypothesis H3.

Table 8 ANOVA Test KTC

ANOVA						
Source of Variation	**SS**	**df**	**MS**	**F**	**P-value**	**F crit**
Between Groups	5.17	2	2.58	2.72	0.067	3.028
Within Groups	264.98	279	0.949			
Total	270.15	281				

The table below is about the model summary of Company's integration with customers. The variance of Company's integration with customer's item CIC1 is 0.59 that shows how much there is the variation of item from mean value. CIC2 variance value is 1.05, whereas for CIC3 variance values is 0.89. Additionally, tables show the average values and sum of the items.

Table 9 Model Summary CIC

SUMMARY				
Groups	**Count**	**Sum**	**Average**	**Variance**
CIC1	94	360	3.829787234	0.59
CIC2	94	348	3.70212766	1.05
CIC3	94	343	3.64893617	0.89

H4: Company's integration with customers has favorable effect on project Performance.

The Above table is an ANOVA table that is used to find out the goodness of fit test in

regression analysis. Here the p-value is greater than 5 percent that is P value is 0.38 that show that there is no any significant relationship between the Company's integration with customers and project performance. So based upon the results we reject hypothesis H4.

Table 10 ANOVA TEST CIC

ANOVA						
Source of Variation	**SS**	**df**	**MS**	**F**	**P-value**	**F crit**
Between Groups	1.62	2	0.8128	0.95	0.38	3.028
Within Groups	236.35	279	0.84			
Total	237.97	281				

The table below is about the model summary of Company's integration with suppliers. The variance of Company's integration with supplier's item CIS1 is 0.60 that shows how much there is the variation of item from mean value. CIS2 variance value is 0.0.93, CIS3 variance value is 1.01, CIS4 variance value is 0.77, whereas for CIS5 variance values is 1.15. Additionally, tables show the average values and sum of the items.

Table 11 Model Summary CIS

SUMMARY				
Groups	**Count**	**Sum**	**Average**	**Variance**
CIS1	94	362	3.85	0.60
CIS2	94	337	3.58	0.93
CIS3	94	319	3.39	1.01
CIS4	94	362	3.85	0.77
CIS5	94	331	3.52	1.15

H5: Company's integration with suppliers has a favorable effect on project performance.

The Above table is an ANOVA table that is used to find out the goodness of fit test in regression analysis. Here the p-value is less than 5 percent that is P value is 0.001 that show that there is significant relationship between the Company's integration with suppliers and project performance. So based upon the results we accept hypothesis H5.

Table 12 ANOVA Test CIS

ANOVA						
Source of Variation	**SS**	**df**	**MS**	**F**	**P-value**	**F crit**
Between Groups	15.68	4	3.92	4.37	0.001	2.391
Within Groups	416.54	465	0.89			
Total	432.23	469				

The table Below is about the model summary of project performance. The variance of project performance item PP1 is 0.90 that shows how much there is the variation of item from mean value. PP2 variance value is 01.19, PP3 variance value is 0.79, PP4 variance value is 0.85, PP5 variance value is 0.69 whereas for PP6 variance values is 0.69. Additionally, tables show the average values and sum of the items.

Table 13 Model Summary PP

SUMMARY				
Groups	**Count**	**Sum**	**Average**	**Variance**
PP1	94	365	3.88	0.90
PP2	94	325	3.457447	1.19
PP3	94	347	3.691489	0.79
PP4	94	360	3.829787	0.85
PP5	94	355	3.776596	0.69
PP 6	94	358	3.808511	0.69

H6: Management integration has positive relationship with project performance.

The Above table is an ANOVA table that is used to find out the goodness of fit test in regression analysis. Here the p-value is less than 5 percent that is P value is 0.02 that demonstrate a strong connection exists between management integration elements and project performance. So based upon the results we accept the H6.

Table 14 ANOVA Test PP

ANOVA						
Source of Variation	**SS**	**df**	**MS**	**F**	**P-value**	**F crit**
Between Groups	10.97	5	2.19	2.56	0.026178	2.23
Within Groups	477.23	558	0.85			
Total	488.20	563				

Hence based upon the results Hypothesis test there is the positive relation of the company integration with the suppliers and it impact upon the project performance. The management integration impact the organizations practices and functions of the project management.

DISCUSSIONS AND CONCLUSIONS

Our study shows that customer integration with suppliers was statistically significantly correlated with the project performance. Mangers desire to improve the project performance should encourage the management integration and consider to encourage more integrity while sharing of information. Management integration is the degree in which a company integrates with its collaborators in order to improve the dissemination of knowledge, money, and product choices, low cost high speed and high value in project performance. Businesses are working at the management integration nowadays in order to achieve speed and flexibility in project performance. As a reaction to rapidly changing environment this study will help firms in using the management integration factors that highly increase the project performance through implementation of effective and efficient management integration factors. The associated process of the management integration helps in changing the necessitate adaption of the control system and organization structure. This study shows that the Company's integration with suppliers has the positive impact on the project performance. The businesses integration with suppliers help the firms in building the strong supply chain for avoiding material delays and help in achieving the customer's demands on time.

RECOMMENDATIONS

The breadth of this investigation was confined by the small sample size of 94 people, hence the following set of suggestions has been made for doing future research: Future work should increase the sample size to enlarge the investigation's range. Outcomes will be produced as a result that are more trustworthy. Due to the non-probability convenience sampling method applied in this research, not every person in the galaxy had an equal likelihood of being selected. Additional study should use sophisticated sampling methods to improve the general validity of the study and qualitative methods like interviews and observations to produce better detailed and trustworthy information. In addition, sophisticated methods like SEM and PLS can be used to produce outcomes that are more reliable. Future research should look closely at the cultural setting of Pakistan to see how other organizational integration characteristics relate to project performance.

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