



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

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ABSTRACT

This study's objective was to determine the inspiration of management integration on project performance. Management Integration leads towards the success of the projects. Objective: To measure the importance of the management integration factors and investigated the relationship of the management integration dimensions on project performance. Methodology: Data were collected by a standardized survey questionnaire by employing the convenience sample method. Results: revealed that there is a positive relationship between company integration with customers whereas there is an insignificant relationship between the rest of the factors. Conclusion: Properly managing the integration factors increases the performance, success chance of the project performance.



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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; 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). As a result, supply chain integration has been thoroughly researched in prior project management investigations.

Project Charter Development

Create the project documentation, give project coordinator permission before a project begins. The project was formally approved after the design phase was approved (Mark, and Lurie, 2018). The Project Charter also gives project managers permission to promise resources from the corporation to project-related tasks.

Integration of Changes

Merging of changes includes assessing and approving each proposed changes for the project, implementing the necessary modifications, revising the project's management strategy and project documentation, and incorporating all modifications into the final project outcomes. Caldas and Gupta (2017) indicates that change can have a serious impact on the budget and project plan. They added that an inadequate project plan integration might result in confusing priorities, ambiguous needs, and confusing restrictions, which can result in revisions, remakes, and disruptions (Vieira, et al, 2019). Bergamin, and Braun, (2018) also shows that

ineffective change management, combining construction methods, and design methods are very effective in 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) 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). 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). 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

There is a close association among integration management and performance and different studies indicate that using integrated methods can improve the project success rate and performance (Yuliadi and Nugroho, 2019). However, although integration should be evaluated as a basic component that has many aspects and influences other factors in the project network, these studies still include software integration and relational integration (Batselier and Vanhoucke, 2017). Due to the dispersion of work between different stakeholders and different sub-processes, the construction sector continues to suffer from poor project performance. Clarifying this relationship helps construction professionals use critical metrics for project evaluation and understand the rationale behind project integrity when managing complex projects can be challenging (Demirkesen and Ozorhon, 2017). For construction professionals, it is critical to comprehend, appreciate, describe, and simulate the elements that influence building activity. (Ferreira et al., 2017). Therefore, a conceptual framework is needed that better reflects the variables affecting the construction sector.

Another study by Wang, Kang, Childerhouse and Huo (2018) has shed light on the integration of Sharing of information with clients and suppliers can result in improved collaborative learning, which can boost operational efficiency. Shahzad et al (2016) emphasize organizational integration of information, procedures, and tactics, as organizational integration increases project performance through capabilities created in previous assignments and overall organizational creativity. It is also said that the integration of knowledge and processes can improve the performance of projects and organizations (Ali et al., 2018).

However, integration appears to be a key factor in properly coordinating a project, because effective project visualization and planning are important (Ferreira et al., 2017). As explained earlier in the research above, integration is closely related to the fundamentals and project management sectors as a result, it is possible to conclude that integration has an obvious and immediate influence on the project's success. (Demirkesen and Ozorhon, 2017). As a result, the purpose of this study is to address this discrepancy by establishing a framework that explains the fundamental principles of integration and performance. Depending on the viewpoints of contracting businesses, the framework strives to depict the performance link among integrated management and project management.

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.

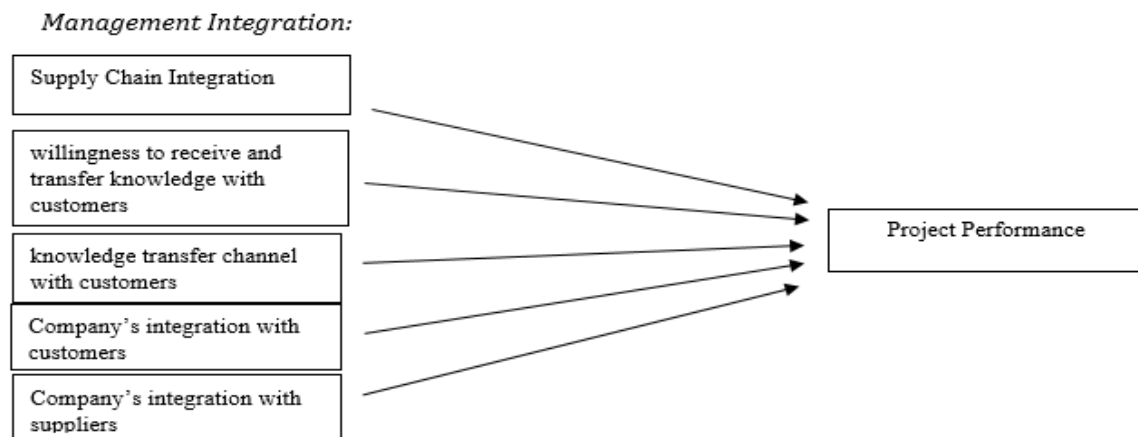
H3: knowledge transfer channel with customers has a positive impact on project performance.

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 AND DATA COLLECTION

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.

Sample Size and Sample Selection Technique

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.

Statistical tests used for data analysis

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 (α) 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 - 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 - 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 4-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 5- 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 6- 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 7- 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 8- 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 0.93, 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 9-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 10-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 0.19, 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 11- 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 12-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

Our study shows that customer integration with suppliers was statistically significantly correlated with the project performance. Managers 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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