

# Role of Project Manager's Competencies towards Project Success: An Empirical Evidence from Public Art and Construction Industry of Pakistan

**Romana Yasmin Khan**

Huazhong University of Science and  
Technology, Wuhan,  
China and Islamic International University  
Islamabad ,Pakistan

**JianJun Huang**

Huazhong University of Science and  
Technology, Wuhan,  
China

**Moazam Abas**

Huazhong University of Science and  
Technology, Wuhan, China

**Zafar Iqbal**

Islamic International University Islamabad ,  
Pakistan

## Abstract

This study aims to investigate the role of project manager's competencies towards success of construction project, because the project manager is the one who drives the projects through thick and thin. The study is quantitative in its essence, and an adapted questionnaire is used for data collection. The primary responses were collected to represent the actual scenario regarding examination of project managers' competencies on project success. The sample comprised of project managers and front-line managers working on construction projects of New Housing Societies Pakistan. Research findings suggest that project integration management competency, project quality management competency, project communication management competency and project interpersonal management competencies plays significant role in success of Public Art and construction projects. The study suggests useful implications for the managers to develop their competencies for better performance and managing the project team members.

**Keywords:** Project Success, Construction Management, Manager's Competencies, Public Art

## Introduction

Project success remained an ever-interesting area, and primary concern for the project managers. This is not only limited to the employees, but imperative concern for all internal and external stakeholders. According to Crawford (2005) project success is an important project management issue and one of the most frequently discussed topics in construction management. Research studies examined the project success from various angles; few were concerned with the time factor (Thomas, 2018; Wateridge, 1998), others were found curious about the cost factor (Baccarini, 1999; Marchewka, 2015), and few studies also highlight quality concerns related to project success (Kerzner, 2017; Marchewka, 2015). Furthermore, studies also emphasized on leadership styles which play pivotal role in people management and leads towards project success (Turner and Müller, 2005). There is lack of agreement concerning the criteria by which project success should be judged (Baccarini, 1999; Pinto and Slevin, 1988; Prabhakar, 2008).

Construction industry and the public art construction activities are one of the major sources of economic growth and economic development of the country (Arshad et al., 2017). It helps in economic uplift of the

country, and provides employment opportunities to several unskilled, semi-skilled and skilled people (Khan, 2008). Moreover, it helps in earning foreign exchange by dealing in Public Art and Building construction material and engineering equipment. GDP From Construction in Pakistan increased to 343183 PKR Million in 2018 from 320769 PKR Million in 2017. GDP from Construction in Pakistan averaged 247347.62 PKR Million from 2006 until 2018; reaching an all-time high of 343183 PKR Million in 2018 and a record low of 186380 PKR Million in 2006. Roughly 30-35% of employment is directly or indirectly affiliated with the construction sector. As such, the construction sector in Pakistan has played an important role in providing jobs and facilitating revival of the economy. The construction activity has decreased by 7.57 percent due to conservative construction-related expenditure reported in rest of the economic activities.

Economic Survey of Pakistan (2017) indicates impressive growth of 9.1 percent in the construction industry as compared to the previous year and contributed in 2.7 percent of GDP (Husain, 2017). It is expected to grow further in the near future due to mega projects of China Pakistan Economic Corridor (CPEC).

According to economic survey of Pakistan (2019), GDP from Construction in Pakistan increased to 343183 PKR Million in 2018 from 320769 PKR Million in 2017. GDP From Construction in Pakistan averaged 247347.62 PKR Million from 2006 until 2018, reaching an all-time high of 343183 PKR Million in 2018 and a record low of 186380 PKR Million in 2006. Apart from tremendous growth in the public Art and construction sector of Pakistan, this sector is one of the most neglected areas in the research. In the light of the facts provided above it stands necessary to investigate the factors affecting growth in the construction projects in Pakistan and the construction industry as a whole.

To understand dynamic environment of construction industry of Pakistan, there is intense need to conduct studies that help project managers to identify critical factors which ensure success in construction projects (Ahmad et al., 2015). Wang has reported that factors effecting project success in China are different from the main stream of project management, and thus recommended to examine the factors influencing project success in different countries of the World. Moreover, their study suggests that interpersonal relationships of project managers with stakeholders play significant role in success of Chinese construction and public art projects, along with conventional factors of time, cost and quality. By considering the nationality prospective (Müller and Turner, 2007), Public artwork is usually dedicated to the particular

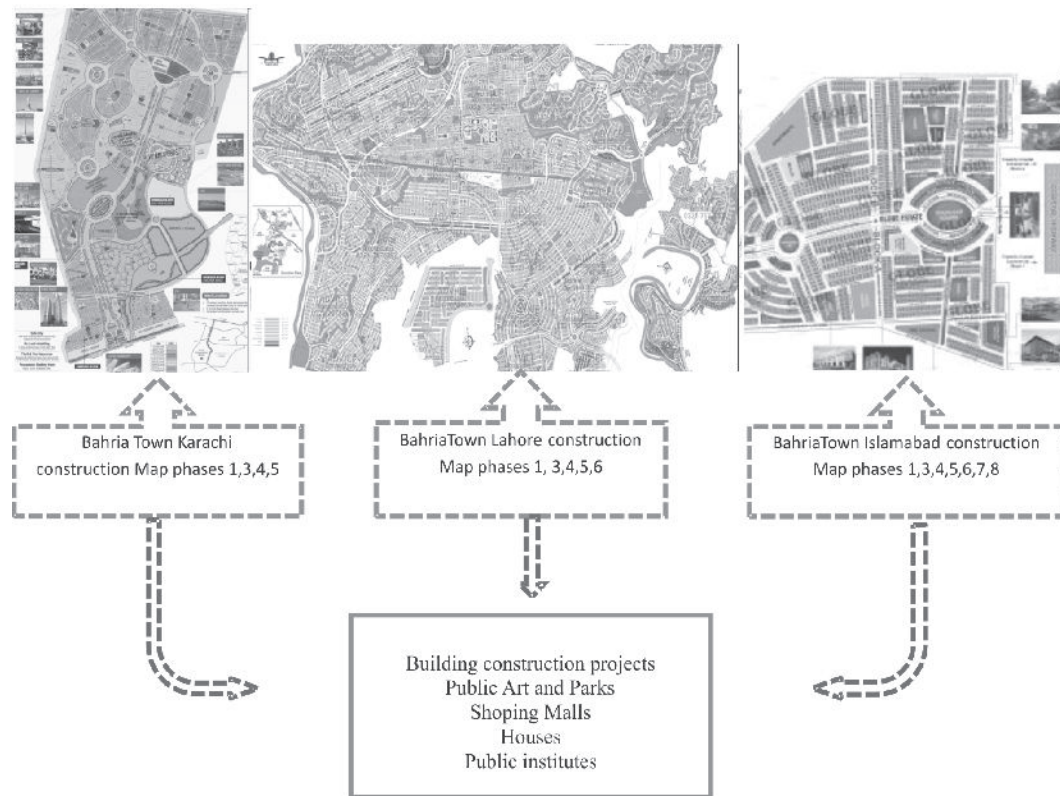
site location, which means it is created based on where it is located. Although this is a characteristic of society, the development and management of public art can be a complex process. The research also focuses on public art project management capabilities of the housing society, including murals, sculptures, memorials, mixed-use buildings or landscapes art in developing and building new housing communities.

The study also aims to promote best practices in public art construction and raise the level of urban art and culture. Large-scale projects with well-developed housing societies have increasingly focused on building innovative public art for local communities alongside the roads, canals, parks, museums, shopping centers, mosques, stadiums and squares. Pakistan, the current study provides the insights by investigating the success factors in the construction industry of Pakistan. Although the design of public art affect its use, the public space project states that 80% of the success of public art space is the result of its constructed "management", which refers to the maintenance of the space and the planning of activities.

In furthermore, even in the best-designed public interactive spaces, activities need to be well managing build planned. The space must be clean, safe, and well maintained; otherwise it will not be possible to serve people well. Various public art project managers, administrators and cultural planners can play an important role in designing, managing and planning public spaces. Progressively, project manager are being tapped to collaborate with artists, architects, landscape designers, engineers, and city developers in the design and creation of public spaces.

Various public art project managers, cultural planners can play an important role in designing, managing and planning public places. Project managers are gradually being used to design and create public spaces in collaboration with artists, architects, landscape designers, engineers and urban developers. The current study examines the factors that are responsible for the project success and also provide insights about personalized competencies which project manager should possess to ensure project success. The competencies considered for the study include quality management, communication management, interpersonal linkages and project integration management. It is among the aims of the study to determine the relative importance of each factor towards project success.

Fig:1 Bahria Town phase map with construction planning source author



## Literature Review

### Project success

A project is a sequence of tasks, performed in a specific time period, in a manner to achieve specific objectives. As the project has following characteristics; it is likely to be a one-time program having a life cycle beginning at specific start date and closing at an end date. It has a budget and likely to require the use of multiple resources, most of which may be scarce and have to be shared among others. It may require the establishment of a special organization or the crossing of traditional organizational boundaries (Akwushola et al., 2012; Kerzner, 2017; Pasian and Silvius, 2016).

Project success is defined as, “the project is completed satisfactorily and is acceptable to the client”. The project is acceptable to the clients when it is completed in time, within budget and with the predetermined features (Ika et al., 2011). Additionally, project success can be defined in terms of two dimensions that are the technical performance and the efficiency of execution (Maylor and Turkulainen, 2019).

Competencies related to the project manager are a part of critical success factors that have influence on the

functioning and successful completion of the project (Pasian and Silvius, 2016; Turner and Müller, 2005). A competency refers to the knowledge, skill, trait, motive, attitude, value or other personal characteristics predominant in performing a job. It can be developed on the basis of the hard skills in which the technical abilities are required or on the basis of the soft skills in which the interpersonal skills are practiced (Alam et al., 2010). Success without competencies cannot be ensured. The incompetence leads to re-work, and the re-work leads to the wastage of resources such as time, cost and stakeholder's trust in the project manager and the project team. On the basis of previous literature, we suggest following competencies for project in the construction and public art industry. As a new public art construction commission in new housing societies cities Drafting the "Administrative and management on the Construction of public art Sculptures" Improve the level of urban public art.

### Quality management and project success

Ensuring quality is the key to ensure project success, whether it is a case of organizations or projects, it is true for all. Project managers have recognized that quality assurance is one of the most influential factors of project success (Rose, 2013). The quality management is about

ensuring that the project, organizations, products or services are consistent. Generally quality management has four major areas to be covered including quality planning, quality assurance, quality control and quality improvement. Quality is a subjective criterion, and assessment of quality can be done with the help of pre-defined standards and scope of the project. Functionality within the scope of project is an important indicator of project success (Agarwal and Rathod, 2006). Project success and evaluation criteria in construction industry is different from other industries. Huang and Chan (2006) examined the success factors for Chinese construction industry and came to know that besides the factors like time, cost and quality the building up of the relationships of the project managers with all the stakeholders, especially with the clients is most important to get the project completed well in time. In another study related to the IT projects, it was found that the scope of the project and more specifically functionality within the scope defined was the most important factor that ensured success (Agarwal and Rathod, 2006).

In construction projects, managers identify critical success factors for evaluation of quality management.

In the previous studies, Wateridge (1988) has found that the critical success factors with respect to the projects may include the success factors like project results based on the time, cost and quality, appreciation of the client about the accomplishment of the project, project human resources, users, contracting partners and the stakeholders. Success factors responsible for making projects different from others included leadership and team building, policy making and development of the strategy, management of the stakeholders, management of resources and contracting (Westerveld, 2003).

#### **Communication management and project success**

Communication is a key to the soft flow of information, ensuring success throughout the projects (Andersen et al., 2006). Communication has a common nature for all the projects and is equally applied to all the projects being done across the sectors (Ammeter and Dukerich, 2002). Communication as a competency can be defined as, the skills possessed by the project manager to convey the relevant information to the right person at the right time for better utilization of the information. Monitoring and Feedback are considered important activities for better communication of the project related information (White and Fortune, 2002). The project managers dealing with different projects may use different types of techniques for communication. Majority of the projects and project managers prefer to have sound communication system for

effective operations during the commencement of the projects leading to favorable outcomes.

Sumner and Powell (2013) stated that the project managers should possess soft skills and hard skills to be a successful manager. The soft skills are related to the intangible skills possessed, i.e. communication skills and the people management skills. The hard skills are related to the skills that have the technical nature and pertain to the solution of problems, dealing with the financial figures and physical operating the machinery etc. Looking into the importance of the project communication, Frank Cervone (2014) reported that several horrible stories exist regarding non-effective communication between project team members and stakeholders leading to project failures. To avoid the project failures, it is necessary to implement effective communication with the project team members. The effective communication can be practiced by removing and avoiding the barriers and errors that come in the way of effective communication (Choudhry et al., 2017). Removing barriers will help in ensuring project success for all the stakeholders.

#### **Interpersonal Linkage with Project Success**

Management of interpersonal linkages is key to better outcomes of the project. The project managers having the ability to handle the human resources in an appropriate manner to ensure commitment and better performance of employees. It is prerequisite for successful project managers to have emotionally intelligent. They can be emotionally intelligent if they have the capability to understand the feelings of others working under his span of control. This is commonly known as the ability of the project managers to lead, direct and guide, as well as maintain relationships based on harmony is called as the interpersonal competencies possessed by the project manager (Ofori, 2014; Rose, 2013).

The linkage between the project manager and the project success has been examined by various research studies. Turner and Muller (2005) highlighted that the success of the projects is dependent upon the competencies possessed by the project manager. These competencies of the project managers pertained to the leadership strengths reflected by the project managers. Furthermore, they highlighted that the leadership style adopted by the project managers particularly including the dimensions like the emotional intelligence and management focus and intellect can be of ultimate use for achieving success. Assaf, Hassanain, Mughal (2014) highlighted the importance of effective teamwork for the construction projects. They reported that interpersonal relationships are necessary to develop better linkages between team members and project success.



Effective team management requires healthy relationships with all the team members i.e. architects, contractors, material suppliers, government planners and engineers (Winch, 2009).

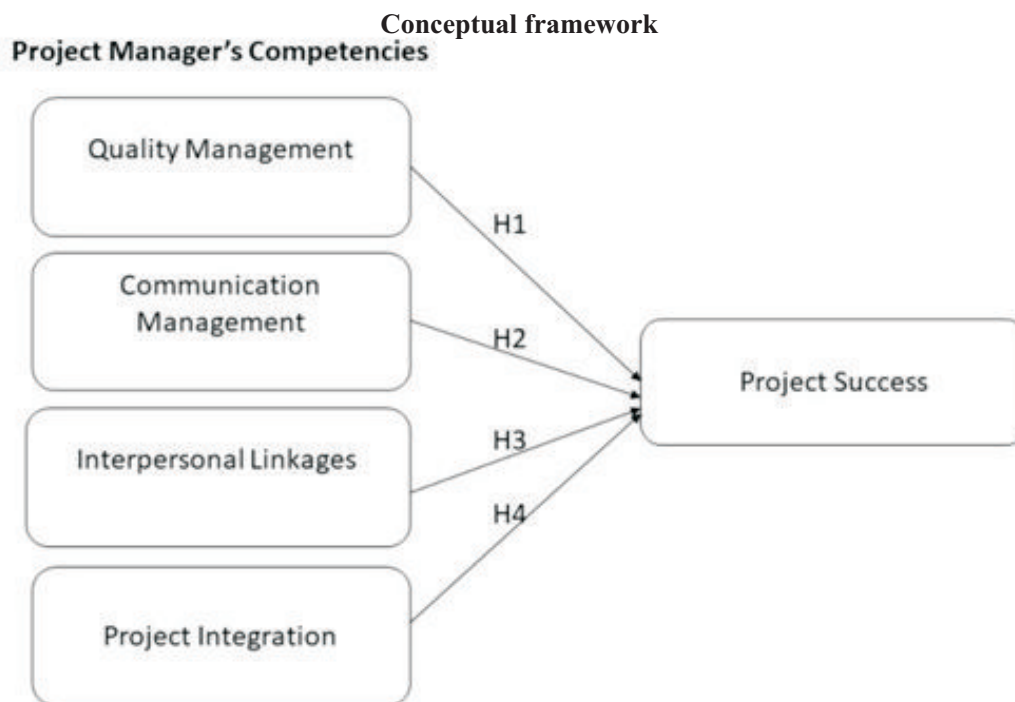
Moreover, it has been noted that the project managers having control over the employees in terms of motivating them is another part of effective interpersonal management. The higher the motivation of employees also leads to better and positive outcomes (Juli, 2010). The interpersonal relationship leading to highly effective teams helps in understanding the prevailing characteristics in the project teams. Managers have to develop those competencies that support making strong bond between the project team members and the related personnel.

### Project Integration and Project Success

Project Integration is about making key choices and decisions about resource coordination and control on

competing objectives and differing alternatives. These are supposed to be the key to project success (Ofori, 2014). Since, the project manager is the one who ensure resource availability, allocate resources to work units and make critical decisions about scheduling; he is responsible for integration of the whole process.

Project manager plans integration points before and during the completion of projects. Project managers are under constant pressure to deal with different kinds of problems occurring during accomplishment of unique outcomes (Takey and Carvalho, 2015). Additionally, they are expected to coordinate the work of people from different disciplines in order to accomplish defined tasks while coping with the complexity, uncertainty and constraints of the project itself (Anantatmula, 2010). For dealing with the complex and ever-changing environment they have to develop certain competencies, and these competencies lead towards project success.



### Hypotheses

H1: There is a positive impact of quality management competencies on construction project success in Pakistan.

H2: There is a positive impact of communication management competencies on construction project success in Pakistan

H3: There is a positive impact of interpersonal linkages

competencies on construction project success in Pakistan

H4: There is a positive impact of project integration competencies on project success in construction projects in Pakistan.

### Methodology

Population is the generalization region in the form of the subject or the object under study to be learned and

conclusions drawn, while the sample is a portion of the population studied. Population of the study is employees working in the construction firms, and employees working in Bahria Town projects were chosen as sample of the study. Bahria Town has over 100,000 employees working in it ("Bahria Town," 2019).

A convenient sampling technique was adopted. The total number of responses included in the study was 255. The sample unit for the study was project managers and front-line managers. A questionnaire was adopted from study of Ofori (2014), in order to measure project manager's competencies which includes quality management, communication management, interpersonal linkage and project integration. For project success, items were adopted from study of Dvir, Raz and Shenhar (2003). Five points Likert type scale was used to assess each measure. The five-points Likert type scale comprised of 1 to 5 response options, where 1 represented "strongly disagree" response, 2 represented "disagree" response, 3 represented "neither disagree nor agree response", 4 represented "agree" response and 5 represented "strongly agree response".

To measure the project integration competencies of the project managers six statements were used ranging from PI1 to PI6, stated in the questionnaire attached.

For the purpose of interpersonal or human resources competencies eleven statements ranging from PH1 to PH11 were used. To measure the project communication competencies again eleven statements were used following a sequence of PC1 to PC11 and for examining the project quality competencies seven statements were used ranging from PQ1 to PQ7. The statements used to measure meeting

planning goals comprised of five statements ranging from PS1 to PS5 and to examine the project success seven statements were used ranging from PS 6 to PS 12.

### Analysis

Table 1 shows demographic information of the sample. Majority of the respondents were under the age limit of 41 to 45 years that comprised 34.1% of the total sample size. Second major category was 46 to 50 years age, which comprised 22.7% composition of the total sample size. Followed by third major age category ranges from 36 to 40 comprised 19.6% of the total sample size. This shows that majority of the respondents working in the Bahria Town were having age between 36 years to 50 years. Majority of the project managers were having bachelor's degree, comprised nearly half of the sample size. Followed by this group, the next category of the respondents was having Masters of Sciences (MS) comprised of 42.7 %. The people having PhD's were very limited comprising 0.8% and were only two in number.

Bahria Town is the equal opportunity employer and focuses on providing employment to male as well as female candidates.

But at the time when the data was gathered from the project managers, it was found that all the respondents were male and none of the female candidate took part in the survey. The tenure of the respondent was necessary to be recorded for the reason that the respondents must know the project well and should be in a position to respond to the statements in a well manner. 54.9% people were having tenure more than 6years. It means that the responses gathered are genuine and people had an adequate experience in the construction Projects considered for the current study

Table 1. Demographics source: author own research

Variables	class	Frequency	Percent	Cumulative Percent
Age	26 to 30 years	7	2.7	2.7
	31 to 35 years	17	6.7	9.4
	36 to 40 years	50	19.6	29.0
	41 to 45 years	87	34.1	63.1
	46 to 50 years	58	22.7	85.9
	51 to 55 years	26	10.2	96.1
	56 to 60 years	10	3.9	100.0
Education	Bachelors	121	47.5	47.5
	Masters	23	9.0	56.5
	MS	109	42.7	99.2
	PhD	2	.8	100.0
Gender	Male	255	100.0	100.0
Experience	1 to 5	27	10.6	10.6
	6 to 10	140	54.9	65.5
	11 to 15	88	34.5	100.0

Variance based PLS-SEM approach is gaining popularity in social sciences. SmartPLS3 software was used for data analysis, because it is suited for exploratory studies and provides path analysis by reduced error term (Hair et al., 2012). Data analysis is performed in two phases; measurement model and structural model as recommended by Hair et al., (2014).

### Phase1: Measurement Model

In the measurement model, we assess reliability and validity of first order constructs. The reliability is the degree of consistency of the scale, while validity refers to truthfulness of scale. In the first step, we extract outer loadings with the help of PLS-SEM algorithm.

In order to increase overall significance of the model, we remove items which do not meet the sufficiency criteria

suggested by (Hair et al., 2012). Table 2 shows outer loadings of the items, which are above the criteria of 0.7 (Wong, 2013). Table 3 shows that Cronbach's Alpha values for all the variables are above 0.7, and scale exhibit good inter-rater consistency. Furthermore, composite reliability values are also above the cutoff value 0.7, which means scale meets the criteria of reliability.

Overall validity of scale is assessed with the help of convergent and discriminate validity. Convergent validity reflects the level of agreement among multiple indicators related to one construct. For establishment of convergent validity AVE, CR and outer loadings should be above 0.5. table 3 shows that AVE and CR values for each variable is higher than 0.5, and table 2 shows outer loadings with are also above the criterion of 0.5. Hence, measurement model exhibits convergent validity.

Table 2. Factor Loadings source :author research

Items	Communication Management	Interpersonal Linkages	Project Integration	Project Success	Quality Management
PC1	0.81333				
PC10	0.8011				
PC11	0.77695				
PC2	0.95474				
PC3	0.97951				
PC4	0.97886				
PC5	0.95085				
PC6	0.81169				
PC7	0.76227				
PH1		0.8157			
PH10		0.81077			
PH11		0.77295			
PH2		0.75965			
PH3		0.81958			
PH4		0.7925			
PH5		0.75473			
PH6		0.80257			
PH8		0.72458			
PH9		0.70901			
PI1			0.84682		
PI2			0.90112		
PI3			0.76617		
PI4			0.72581		
PI5			0.71058		
PI6			0.70942		
PQ2					0.81693
PQ3					0.88901
PQ4					0.80671
PQ6					0.86684
PS1				0.82655	
PS10				0.7713	
PS11				0.80197	
PS12				0.84668	
PS2				0.7582	
PS3				0.77701	
PS4				0.75824	
PS5				0.84034	
PS6				0.843	
PS8				0.8071	

Table 3. Measurement Model source: author research

	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted (AVE)
Communication Management	0.96005	0.9726	0.96657	0.76445
Interpersonal Linkages	0.93416	0.9252	0.9383	0.60384
Project Integration	0.89553	1.0338	0.90239	0.60852
Project Success	0.94231	0.9725	0.94796	0.64599
Quality Management	0.87221	0.9382	0.90924	0.71498

Discriminant validity shows that all the indicators have strong association within specified factor as compared to other factors in the model. For discriminant validity, square root of AVE should be greater the correlations of other

constructs. In Table 4, diagonal values represent square root of AVE, which are greater than other correlation values in rows and columns. So, measurement model holds good reliability and validity.

Table 4. Discriminant Validity source:author research

	Communication Management	Interpersonal Linkages	Project Integration	Project Success	Quality Management
Communication Management	<b>0.87433</b>				
Interpersonal Linkages	0.7048	<b>0.77707</b>			
Project Integration	0.62946	0.69702	<b>0.78008</b>		
Project Success	0.12986	0.08912	0.11218	<b>0.80373</b>	
Quality Management	0.66002	0.70383	0.56124	0.04561	<b>0.84556</b>

### Phase 2: Structural model

Hair et al, (2014) and Wong (2013) suggests that in PLS-SEM after checking the quality standard for reflective model, coefficient of determination and inner model path coefficient must be assessed. So, the current study applied PLS algorithm to assess the quality of reflective model. Circles in the figure shows that how much the variance in the dependent variables are explained by independent variables and values on arrows represents how strong one variable have effect on other (Wong, 2013).

The coefficient of determination is 0.23 for project success which means research model explains 23% variances in project success. PLS-SEM result shows that quality

management, communication management, interpersonal linkages and project integration has significant and positive impact on project success. Path coefficient for reflective model shows that communication management (0.764) has strong effect on project success as compared to the other variables. Quality management (0.715) competency is second most influential factor for project success. Project integration (0.609) and interpersonal linkage (0.604) are third and fourth important factors for project success respectively.



Table 5. Structural Model source :author research

Variables	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics ( O/STDEV )	P-Values	Hypothesis
Communication Management	0.764	0.744	0.078	9.826	0	Accepted
Interpersonal Linkages	0.604	0.523	0.15	4.024	0	Accepted
Project Integration	0.609	0.533	0.161	3.772	0	Accepted
Quality Management	0.715	0.621	0.157	4.548	0	Accepted



Fig 2: villas, shopping malls, institutes and public Art under construction and completed projects Bahria Town Lahore, Islamabad and Karachi Pakistan

## Discussion and Conclusion

The aim of the study was to examine the impact of project manager's competencies on project success in the context of construction projects in Pakistan. The results showed that competencies are necessary components for ensuring construction project success. Quality management competency, communication competency, interpersonal linkage competency and project integration competency has significant impact on project success. Furthermore, it can be concluded that out of four competencies considered for the study, quality management and communication management have critical importance in ensuring project success. It is also important to keep in mind that individual competency could not ensure project success, managers have to master all the necessary competencies. Previous studies also suggest that individual characteristics of the project managers are important but the project related factors are also importance in achieving success (Bakhsheshi and Nejad, 2011). Quality management can be considered as a key to ensure project success, especially in the construction industry of Pakistan. Quality management leads towards client satisfaction, and client often generate positive words of mouth about project manager and construction firm (Lim and Mohamed, 1999). Rose (2013) has mentioned quality management as one of the major

areas of project management. This is a necessary area for managers to develop as a skill area and develop it as a competency. The competency is bit different form developing a skill. The competency is developed after practicing the skill again and again. Higher the exposure in dealing with the project difficulties, higher will be the level of competencies.

Moreover, Quality management is not the only competency which ensure success. In fact, in case of construction industry, overall quality can only be managed if manager have communication competency, interpersonal linkage competency and integration competency. Majority of the research studies have considered examining the effects of quality related issues in the organizational context and have generated a gap to examine the quality related issues in the project settings.

Project manager's communication skills are necessary to deal with different stakeholders (Pasian and Silvius, 2016; Takey and Carvalho, 2015) to complete projects successfully. Communication helps in shaping the personality of the project managers and in this regard Wang (2009) presented a view point that the personality of project managers has influential effects on attaining the success of the projects. Better communication skills help in removing the ambiguities and conflicts prevailing in the projects.

Frank Cervone(2014) reported the effective communication as a backbone for the successful achievements in the projects.

Further it is highlighted that the small teams may be managed well by having an ordinary level of communication skills but managing large teams is tough challenge for the project managers especially the construction projects(Winch, 2009).People management skills are also very crucial for project success. Employees satisfaction leads towards project success. It is responsibility of the project managers to keep plausible relationship with the project team and try to maintain interpersonal linkages. Maintaining formal and informal relationships with the stakeholders help project managers to resolve many issues without bringing them on record. Interpersonal linkages help in making the project teams more effective and the result in better productivity and ultimately project success (Assaf et al., 2014).

The achievement of team effectiveness is necessary and can be attained by utilizing the interpersonal competencies by the project managers. Construction projects need high level of involvement in the construction activates and the activities can be accomplished having well-knit team. Well-knit team becomes an asset for the project and helps in reduced wastage of the project resources and further help in time delivery of information to the relevant personnel. The project managers can take help of appointing right man for the right job by practicing the interpersonal relationships. The interpersonal relationships help them to know the requirements of the team members very well. Smith, Bruyns and Evans (2011) suggested that project managers should develop optimism to reduce stress in the projects. For better management of the interpersonal linkages the project managers have to think and practice optimism.

Project integration is the decisions regarding key aspects of the project. The decision about choices of resources, coordination etc. Integration is an important part of the project. Managers are concerned about the integration of the project because the project integration is linked to commencement of the project. Project integration pertains to choosing the best resources for the project (Ofori, 2014). The best combination of resources especially the human capital is essential for the project success. The current study shows that the project managers were competent in developing the best combination of resources that helped them in managing project success. This is the reason that Bahria Town has developed its name not only in Pakistan but has been regarded as the Asia's best and largest construction project. Moreover Pasian and Silvius (2016) affirmed that sustainability of the projects rests in the competencies held by a project manager. The integration of

all the aspects of project ensures removing ambiguities and smooth running and completion of the project.

### Implications

The managers having project management competencies including integration of the project, managing the quality, using effective means of communication and interpersonal relationship are really helpful in ensuring success of the construction projects. Although a sample examined had positive impact on the success but still there is need to refine it to the highest level for developing a competitive edge in the construction projects.

Keeping in view the four competencies selected it is recommended that quality of the construction projects can be achieved and maintained for a longer period of time by using these competencies, firstly ensuring the well integration of the projects, secondly managing the human resources by using interpersonal competencies and lastly by using effective ways of communication.

Besides development of the formal networks, the informal networking is good to handle the complex situations arising during commencement of the construction projects. The main challenge of the construction projects is to achieve all the goals set. This can be managed by using the four competencies selected for the study.

Since communication is the clarity of the goals to achieve and it can be done by delivering the in time and clear messages to the relevant people working in the project. The clarity of the tasks assigned and the communication of the right expectations for the right people will enable the project manager to avoid conflicts and get the job done in time and within the cost boundaries.

The higher level of competencies means having diverse experience for the managers. The stronger the competency the stronger will be the success of construction projects. The competencies not only look at the soft side of the skills but also require building the hard/ technical skills.

Development of the interpersonal skills as competencies is linked to having strong leadership skills and having strong potential for team work. This can be ensured by monitoring the project team members and providing the feedback to the relevant personnel in time. If the manager develops the informal networks it will become easy for the managers to get closer to the people and the employees will not hesitate to share the difficulties arising out of the tasks performed.

Communication methods are to be kept in mind; the use of effective and more appropriate methods also leads to having successful commencement and completion of the projects. The project managers may consider using face-to

face communication frequently and besides using this they can use the video conferencing for developing an understanding of the employees working under his supervision. The expert opinion can also be shared using this technique. The projection of the designs for better understanding can be made using the PowerPoint presentations and other technology-based tools.

### Limitations and future recommendations

We strongly recommend that future studies incorporate more competencies including technical and non-technical competencies which effect project success in the construction industry. The sampling technique used for the study was non-probability sampling and future studies can use sampling frame for random sampling. It will be interesting to explore success factors at different managerial positions. Sample size can also be considered as limitation, and future studies should consider large sample size.

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