



received: 15 August 2018  
accepted: 15 February 2019

pages: 23-35

# THE MODERATING ROLE OF RISK MANAGEMENT IN PROJECT PLANNING AND PROJECT SUCCESS: EVIDENCE FROM CONSTRUCTION BUSINESSES OF PAKISTAN AND THE UK

MARIUSZ URBAŃSKI, ADNAN UL HAQUE, ISAIAH OINO

## ABSTRACT

This comparative study examines the moderating role of risk management in project planning and project success in the construction business of the UK and Pakistan. The data was gathered from 152 project managers (76 from both economies each) using a survey questionnaire. The purposive sampling technique was used to ensure fair representation of sample size and the RAND formula was used to select the project managers. For quantitative analysis, partial least square structural equation modelling technique was utilised. The results confirmed that project planning had a statistically significant impact on project success. Furthermore, risk management significantly moderated the relationship between project planning and project success in the construction businesses despite being in two different economies. The paper contributes to the enhancement of the body of knowledge intended for global companies and academicians aiming to implement risk management frameworks to enhance project success and ensure the effectiveness of project planning in a competitive business environment. It offers a new perspective to investigate the relationship between project planning and project success through moderating the effect of risk management, which is a new theoretical dimension for construction business and the field of project management. It is proposed to the governments and construction businesses operating in the UK and Pakistan to validate the empirical research framework in the cross-cultural context while assessing risk and uncertainty. It helps the construction business in the evaluation of risk while planning and successfully implementing project strategies.

## KEY WORDS

**project planning, project success, risk management, construction business, contrasting economies**

DOI: 10.2478/emj-2019-0002

Corresponding author:

**Mariusz Urbański**

Czestochowa University  
of Technology, Poland  
e-mail: murbanski@interia.eu

**Adnan Ul Haque**

University of Wales Trinity Saint David,  
United Kingdom  
e-mail: adnan@sribpc.com

**Isaiah Oino**

Coventry University, United Kingdom  
e-mail: ac3497@coventry.ac.uk

## INTRODUCTION

The construction industry has a significant role in the economic growth and development of the national economy (Dakhil, 2013). The construction industry is mainly significant because of its contribution to the economy (Dakhil, 2013). Nevertheless, the contribution and role of construction businesses significantly vary from one

economy to another (Khan, 2008). In the context of emerging economies, the construction industry is a sector that makes an important contribution by developing new infrastructure and buildings, e.g., airports, housing, schools, roads, railways, new hospitals and others (Khan, 2008). On the other hand, in developed economies, the construction industry has a more holistic role due to a greater

emphasis on the provision of professional services as well as repair and maintenance construction (Bon & Bietroforte, 1999; Ruddock, 2009). Nevertheless, the construction industry is also significant in the creation of employment while offering billions of job opportunities in both developed and emerging economies (Dakhil, 2013; UK Government Construction Strategy, 2011; Khan, 2008). In the UK, the construction industry's contribution to the gross domestic product (GDP) is 7% while the annual output is over GBP 110 billion (British Innovation & Skills - BIS, 2013). Moreover, 60% of the UK construction industry is involved in new building whilst 40% is engaged in maintenance and refurbishment (BIS, 2013). Interestingly, the construction industry of the UK creates 2030,000 contractual jobs and 234,000 permanent jobs. On the other hand, in Pakistan, the contribution of the construction sector towards GDP is 2.3% with the annual growth of 5.2% and approx. 5.5% of the total employed labour force (PSDF, 2013). The economic growth in Pakistan is escalated by over 100,000 employees holding contractual and permanent jobs created by the construction industry (Khan & Gul, 2017). Gradual growth in the construction businesses is achieved by massive investments in Pakistan from China-Pakistan Economic Corridor Project (CPEC) (Gazder & Khan, 2018). As a result, Hawksbay, Karachi received approx. USD 60 billion in investments while another USD 43 billion went to Bin Qasim (Gazder & Khan, 2018). Also, Naya Pakistan Housing Scheme project has started offering over five million houses in the entire country, which will increase job opportunities as well as promote construction business across the country (Wasim, 2018).

Project success and performance to a greater extent depend on planning; therefore, it plays a pivotal role during the phases of project formation (Naeem et al., 2018). Idoro (2012) argues that planning is a thorough continuous process for delivering a project. Many empirical studies regarding success factors of project management indicated planning as the key contributor towards project success (Aronson & Lechlier, 2009; Murphy et al., 1974; Slevin & Pinto, 1987). Interestingly, Dvira, Razb & Shenhar (2002) explain that the formulation of a solid project plan is required by all project managers in order to succeed in the project.

Prabhakar (2009) argues that project success is one of the most important areas within the project management discipline. Muller and Jugdev (2012)

explain several factors that determine the project success such as a type of project, the contract duration and an individual's role within the project. On the other hand, Baccarini (1991) argues that project success contains two parts, namely, product success and project management success. Interpersonal trust and institutional trust (Ejdys, 2018) could be effective in project planning, project success and risk management.

Rabechini and de Carvalho (2013) state that in professional project management, risk is attributed to one of the major concerns, particularly, after the global financial crisis of 2008. Risk associated with a project is termed project risk, which often reflects the project's unfavourable state (Zhang, 2007). Parker and Mobey (2004) argue that no matter how many measures are considered, no type of project comes with a guarantee as even the most carefully planned tasks face obstacles and problems. Due to the uncertain environment, even the simplest activity could encounter unexpected problems, which may alter the project activity despite all the proper precautions taken by the project manager (Parker & Mobey, 2004). "Project risk management is regarded as a process that accompanies the project from its definition through its planning, execution and control phases up to its completion and closure" (Raz & Michael, 2001, pp. 9-17). Additionally, the anticipated outcomes are a risk management measure through decision milestones that prevents sequential frustration and disaster so that available resources are utilised most effectively. However, projects still encounter budget overruns, schedule delays and compromised specifications (Meyer et al., 2017). Ejdys and Halicka (2018) argue that a positive attitude reflects the readiness to learn. This could be effective in adequately assessing risk and planning.

Past research studies confirmed that planning should be the prime focus of project management teams to improve performance (Lemma, 2014). Additionally, the work by Ahmed (2012) confirmed that the management plan was positively affected by organisational efficiency in those organisations that incorporate risk management and planning while implementing management practices. The present study offers a solution to construction businesses operating in private or public domains. The recommendations of this study offer effective means for planning while reducing the project risk. The outcomes of present research may also assist construction businesses in the development of project plans and risk management skills to ensure project

Tab. 1. Structure of the current research segments

<b>LITERATURE REVIEW</b>	This section contains the critical discussion regarding the research variables, namely, project planning, project success and risk management. Additionally, this section identifies gaps in the literature to develop research hypotheses
<b>RESEARCH FRAMEWORK AND HYPOTHESES</b>	Based on the earlier review of the literature, a conceptual and theoretical model is presented along with the research hypotheses. The hypotheses mainly explain the relationship between project planning and project success together with the moderating effect of risk management
<b>RESEARCH METHODOLOGY</b>	The adopted strategies and techniques undertaken in this study are explained in this section. It offers the justification for the selection of the sample size, the instrument and data analysis techniques
<b>RESULTS AND DATA ANALYSIS</b>	This section contains a measurement model and a structural model. As the first step, the validity of the measurement model is assessed using Cronbach's alpha, composite reliability, AVE and Fornell-Larcker test. Once the validity of the model is confirmed, the structural model is used to test the research hypotheses using a path coefficient. It also contains the variability assessment and the effect that the size of latent variables has on the endogenous variable. The results showed a significant relationship between project planning and project success as well as the moderating effect of risk management on considered variables
<b>FINDINGS AND DISCUSSION</b>	This part contains findings and discussion regarding the obtained results and their analysis in the light of available literature. It includes the confirmation or rejection of previous findings
<b>CONCLUSION AND RECOMMENDATION</b>	The last section draws the logical conclusion about the relationship. It also provides the recommendations for construction businesses together with guidelines for researchers to validate the theoretical framework as well as attain broader generalizability

success in a competitive business environment. There are traces of the mediation role of risk management in the construction industry of emerging economies (Khan, 2008; Naem et al., 2018); however, through a comparative lens, the researched area considers the moderating role of risk management in relation to project planning and project success. Additionally, the present research focuses on the impact project planning has on performance while considering the moderating effect of risk management on the project success, which has not been addressed previously by researchers. Several papers contain a discussion regarding the project planning and risk management as pivotal attributes of project success. However, the discussions did not consider the moderating effect of risk management in relation to project planning and project success. Furthermore, the discussions remained limited to regional specifics while there was no evidence from the contrasting economies to indicate that the moderating effect varied in distinctive types of economies. Thereby, this study compares countries the Western Europe and South Asia in terms of the moderating role of risk management in project planning and success.

## 1. LITERATURE REVIEW

### 1.1. PROJECT SUCCESS

Various authors define project management looking through an operational and conceptual lens (de Carvalho & Rabechini, 2017; Pinto & Pinto, 1991; Wu, Liu, Zhao & Zuo, 2017). According to Pinto and Pinto (1991), the satisfaction of customers, time, cost and quality are all parts of project success. On the other hand, Carvalho and Rabechini (2017) indicate three aspects in the definition of project success, namely, (a) an impact of the project on the business, client and staff, (b) the project efficiency, and (c) the preparation for the future. Interestingly, Wu et al. (2017) explained it comprehensively by stating that "it involves the quality, cost, time, health & safety, environmental control, the satisfaction of participants, users and commercial values" (pp. 1466-1482). "There are various factors affecting project success that affect the contractual flexibility" (Wu et al., 2018, pp. 1039-1061). Nevertheless, several studies have investigated the project success through work bulling, corporate reputation, emotional intelligence, entrepreneurial orientation, team learning, corporate reputation, innovation and human resource practices (Creasy & Carnes, 2017; Dakhil, 2013; Irfan

& Hassan, 2017; Martens et al., 2018; Naeem et al., 2018; Rezvani et al., 2016; Yang et al., 2015). Specifically, the present study mainly focused on the moderating effect of risk management on the relationship between project planning and project success. Hence, it considered the work by Pare et al., (2008) that looked into different types of risk associated with project success, including technological risk, human risk and strategic risk. While analysing risk management, all three aspects of risk were considered.

### 1.2. LINKAGE BETWEEN PROJECT PLANNING AND PROJECT SUCCESS

According to Naeem et al. (2018), the desire of an administrator, team worker, designer, organiser, proprietor, or any other member to reach an outcome reflects the success of a project. On the other hand, it is generally hinted that project success means attaining an outcome that is either better than expected or usually realised as far as to achieve member fulfilment and security assurance, while quality and cost are managed with good results (Ashley et al., 1987). Interestingly, “a project is viewed as a general success on the off chance that it meets the specialized execution specification or potentially mission to be performed, and if there is an abnormal state of fulfilment concerning the project’s result among key individuals in the parent association, enter individuals in the project group and key clients or customers of the project exertion” (de Wit, 1988; cited from Naeem et al., 2018, pp. 88-98). On the other hand, Sanvido et al. (1992) argue that the project objectives and actual desires are aligned, reflecting the success of a project. This indicates that project success is connected to adequate planning. Furthermore, the desires and objectives incorporate various angles including social, financial, expert and instructive (Sanvido et al., 1992). Several studies confirmed the positive effect of the project anticipation on the project success (Murphy et al., 1974; Naeem et al., 2018).

Cleland and Ireland (2006) explain that, “the process of planning through what’s more, making unequivocal the targets, objectives, and procedures important to bring the project through its lifecycle to a fruitful end when the project’s item, management, or process assumes its legitimate position in the execution of project proprietor methodologies” (cited from Naeem et al., 2018, pp. 88-98). Several authors have investigated broader possibilities, which impact

on project success to any extent (Zwikael et al., 2014). Project success is significantly affected by the planning and adoption of the standard purpose and procedures related to project lifecycle (Rahrovani, Chan & Pinsonneault, 2014). Project success is possibility enhanced using required assets, project training and arrangements and deciding upon ideal strategies that are part of the project planning process (Naeem et al., 2018). Also, Galvin et al., (2014) state that the set targets are achieved by a project that follows extended planning in the conceptualised stage to the execution point. The results of a project are affected by adequate selection of options in the planning procedure (Arditi, 1985; Naeem et al., 2018). Interestingly, hierarchical strategies, internal operations, administrations, and devising new components are the areas where project planning could be utilised (Nutt, 1982; Nutt, 1983). Nevertheless, Naeem et al. (2018) also found that project success was often the result of extraordinary strategic planning during the project process. Nevertheless, it is particularly problematic or even challenging to understand precisely at the fundamental planning phase what should be considered or discarded during the process to complete the project while considering the cost and duration parameters (Andersen, 1996). Hence, there is evidence attesting to the relationship between project planning and project success.

### 1.3. LINKAGE BETWEEN RISK MANAGEMENT AND PROJECT SUCCESS

Project risk is associated with all phases of project planning. It is often used to demonstrate a plausible or difficult situation of a project (Naeem et al., 2018). At the same time, it additionally has a propensity to be an errand related or objective-related idea (Naeem et al., 2018). A project can be perceived as a short-term framework (or linkage) that is arranged to complete tasks or attain specific objectives (Lundin, 1995; Packendorff, 1995; Turner, 2006). The importance of project risk cannot be avoided while considering the framework. Besides, a project risk may be considered as a feasible troubling effect that may give rise to a challenge in the attainment of framework objectives, for instance, quality, arrangements, etc. (Naeem et al., 2018). Zhang (2007) found that the recognition of the importance of project risk attested to the ability of project management to handle divergence from pre-defined objectives. Interestingly, Duncan (2005) explained

project risk as, a “dubious project chance occasion or condition that, on the off chance that it happens, has a positive or negative impact on a project’s targets” (pp. 03-216). On the other hand, Datta and Mukerjee (2001) argued that successful project completion depended to a great extent on the early identification of immediate risks. Constructively, there are numerous variables that predict and determine the success of a project. Nonetheless, it is still evident that negligence towards appropriate consideration of risk management increases the chances of disappointment or failure (Naeem et al., 2018). The well-known aphorism “failing to plan is planning to fail” is assumed to pertain to dangers. So, it is necessary to adopt a convincing strategy for coping with uncertainties and extended dangers, which would be easily understood by the project group as well as used and implemented (Carbone & Tippett, 2004).

#### **1.4. LINKAGE BETWEEN PROJECT PLANNING AND PROJECT RISK MANAGEMENT**

The expansion of a project in size and multifaceted nature and, thus, the adoption of a multidimensional strategy for project management necessitate adequate consideration of risk management (Naeem et al., 2018). According to Carbone and Tippett (2004), the success of a project as well as the chances of effectively overseeing project operations increase using a basic hazard management instrument. Encompassing all interlinked risks, risk management aims to ensure the success of a project. Support should be set on differentiating the shortcomings of a plan or concept. Several studies confirmed that at the stage where possibility evaluations are assigned based on a fair and specific requirement for data, they have a propensity to be effectively used to reduce physical and financial hazard (Ramirez-Cortés et al., 2012; Naeem et al., 2018). Likewise, as with the Input–Transformation–Output process, the obligation of risk management for catching advantages ought to be appointed to a particular individual (Zwikael & Smyrk, 2012), the project supervisor should oversee project possibilities as planned, yet should not be held accountable for obtaining the standard benefits from it. Interestingly, project success is regarded as a notion that has been found vaguely defined within the literature related to project management as well as from the perspective of a project manager’s psyche. Objectives have usually been expressed as a triangle that reflects quality, cost and time.

This is an invaluable instructive and sophisticated instrument that simply reveals how a shift within any of the attributes of the triangle impacts on the remaining two components (Slevin & Pinto, 1986). Strategizing the structural development process entails presuming what should be done, who should complete the task and the approximate time for the completion of the task. Specifically, time, cost and staff assets required for project execution and exertion are part of project planning. Furthermore, planning requires several activities, for instance, strategizing distinctive deliverables and focuses of a survey, that depend on the phases of progression, which provides a conventional structure to the project (Ratcliff, 1987). Several studies related to project management success attribute recommended planning as the key factor of the success of a project (Aronson & Lechler, 2009; Murphy et al., 1974; Slevin & Pinto, 1987). The literature reflects the association between project risk management and project planning.

#### **1.5. MODERATING ROLE OF RISK MANAGEMENT**

“Project risk management is a continuous process of identifying, analysing, organizing and moderating dangers that debilitate an activity’s probability of success regarding cost, plan, quality, wellbeing and specialized execution” (Naeem et al., 2018, pp. 88-98). Associations and managers frequently contemplate broadened risk management practices as ‘nice to have’ within a project as opposed to centralised project control. Whilst deciding upon project-related significant risk and associated needs, it is important to construct arrangements related to risk control capabilities to limit the controlled risk. The primary stage in the process is to construct a risk administration layout that explains the practices essential to bringing risk-related aspects under control so that the project could be successfully moving forward and be completed (Boehm, 1991). The major objective of employing project risk management is the enhancement of organisational value (Dalcher, 2012). “The social and geological separation produced by seaward outsourcing, the essential issue to consider is how social contrasts influence project’s successful management that navigate sideways over traditions. Exactly, multifaceted issues are almost certainly going to wind up particularly an important component, as they have in the administration of global joint tasks that helps in projects to be successful” (Brannen & Salk, 2000, pp. 451-487). Similarly, risk factors and

their impact on project success could be identified in relation to cost, time, quality, safety and environmental sustainability (Zehra & Faizan, 2017).

Hence, the literature indicates that pre-planning risk management moderates the relationship between project planning and project success. Nevertheless, project risk management is regarded as a continuous process related to identifying, analysing, organising as well as moderating risks that adversely affect the likelihood of project success concerning quality, plan, cost and professional execution (Naeem et al., 2016). Interestingly, previous studies confirmed planning as the most critical factor for project success (Pinto & Slevin, 1989; Naeem et al., 2018). Also, the responsibility of successful operation lies with the project manager, who, therefore, must ensure that all the operations are legitimately carried out and completed entirely by every single relevant collaborator (Meredith & Mantel, 1995; Naeem et al., 2018; Pinto & Slevin, 1989). The expected critical impact of corporate planning has been recognised only by some projects, depending on nature and situations (Ramanujam & Venkatraman, 1986; Rhyne, 1986). Interestingly, Armstrong (1982) found that only ten out of fifteen experimental reports confirmed that formal planning activities gave rise to significant changes in operations. On the other hand, the results in relation to the impact of anticipated project success are considerably less ambiguous. The review of 44 studies on the success factor of project management found only thirteen studies that confirmed the impact of project planning as significant on the project success in the presence of different types of risks (Gemuenden & Lechler, 1997).

## 2. RESEARCH FRAMEWORK AND HYPOTHESES

Based on the review of the available literature, the research framework for this study was made (Fig. 1).



Fig. 1. Research framework of the current study

Based on the literature review, the following hypotheses were formulated:

H1: There is a positive linkage between project planning and project success.

H2: There is a positive linkage between risk management and project success.

H3: Risk management moderates the relationship between project planning and project success.

## 3. RESEARCH METHODOLOGY

In this study, a survey questionnaire was circulated in different construction businesses operating in Pakistan and the UK selected using the purposive (non-probability) sampling technique. In cross-sectional research design, purposive sampling is more appropriate for sub-groups as it offers a fair representation of the target audience (Haque, Aston & Kozlovski, 2018). Thus, purposive sampling was considered to have equal representation in both economies. The total of 152 project managers (76 from Pakistan and the UK each) were approached, and the response rate was 37.25%.

Moreover, following the strategy by Imran, Jian, Haque, Urbanski and Nair (2018), with the help of Microsoft Excel 2016 RAND function, respondents were randomly chosen from the list of selected organisations. The questionnaire contained four sections. Data for project success, project planning and project risk management were assessed on 5-point Likert scale (1=Strongly Disagree, 2=Disagree, 3=Neither Agree nor Disagree, 4=Agree, 5=Strongly Agree). The medium of instruction of the questionnaire was English as it is the mandatory language used in education in both countries. The first section contains questions related to demographic information, including age, experience and qualification. Followed by the section asking questions regarding research project planning, project risk management and, lastly, project success. This study considered four

items for measuring project success of the PIP scale by Pinto and Prescott PIP (1998), 3-item scale for risk management by Raz, Shenhar & Dvir's (2002), and three items of the scale for measuring project planning by Dvir et al. (2003).

The ethical considerations were made to ensure confidentiality and anonymity of the respondents. The respondents were informed about the research purpose and the right to withdraw from participation at any stage.

SmartPLS 2.3.8 software was considered for the structural equation modelling (SEM) technique for data analysis. PLS-SEM data analysis contains two steps, namely, a measurement model and a structural model.

## 4. RESULTS AND DATA ANALYSIS

### 4.1. MEASUREMENT MODEL

Cronbach's alpha ( $\alpha$ ), composite reliability (CR), Average Variance Extracted (AVE) and Fornell – Larcker Criterion are four criteria for validating the measurement model. According to Hair, Hult, Ringle and Sarstedt (2016), the threshold value for Cron-

bach's alpha and composite reliability is to be equal or greater than 0.7, whereas the AVE value should be equal or greater than 0.50. The reliability of the data in distinctive economies and the results of the study are presented in Table 1 and Figs. 2 and 3, respectively. Moreover, the Fornell–Larcker Criterion is based on the correlation between exogenous variables while such values of the variables are compared with the square root of AVEs. Lastly, Table 2 reveals correlations between all the variables of interest that are lesser than the square root-averages (AVEs), which are highlighted crosswise following the strategy by Hair et al. (2016).

Cronbach's alpha was used for reliability to measure the internal consistency of Project Planning (PP), Risk Management (RM) and Project Success (PS). In other words, it was used to measure the overall reliability of the survey questionnaire. Results revealed that  $PP=0.798 > 0.7$  in the UK and  $PP=0.771 > 0.7$  in Pakistan (acceptable);  $RM=0.757 > 0.7$  in the UK and  $RM=0.721 > 0.7$  in Pakistan (acceptable); and  $PS=0.821 > 0.7$  in the UK and  $PS=0.799 > 0.7$  in Pakistan (acceptable). Hence, there was internal consistency among the items on the scale (Tab. 2). Likewise, CR values in both countries were greater than 0.7, indicating that composite reliability is acceptable

Tab. 2. Reliability values of constructs

CONSTRUCTS	UNITED KINGDOM			PAKISTAN		
	A	CR	AVE	$\alpha$	CR	AVE
PP	0.798	0.769	0.534	0.771	0.752	0.530
RM	0.757	0.724	0.521	0.721	0.719	0.512
PS	0.821	0.805	0.597	0.799	0.732	0.525

Note: PP=Project Planning; RM=Risk Management; PS=Project Success

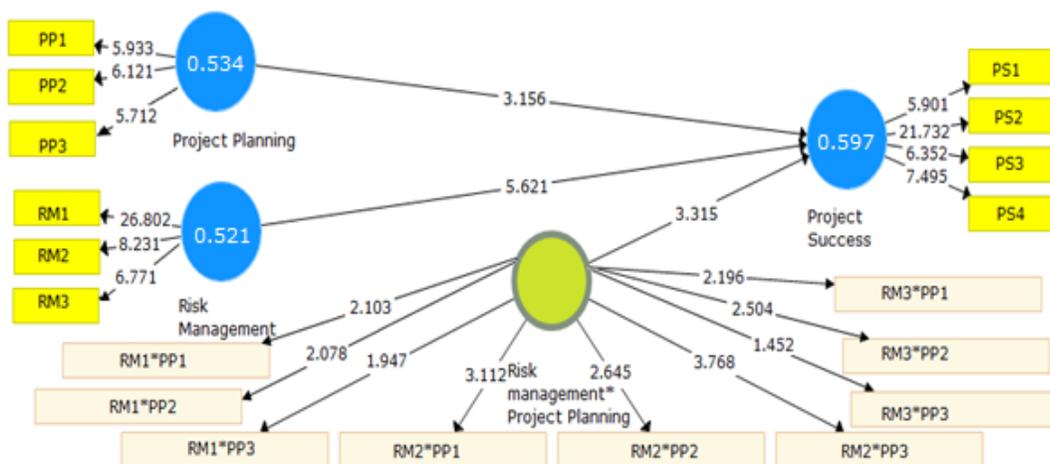


Fig. 2. Moderating effect of risk management on project planning and project success in the UK's construction industry

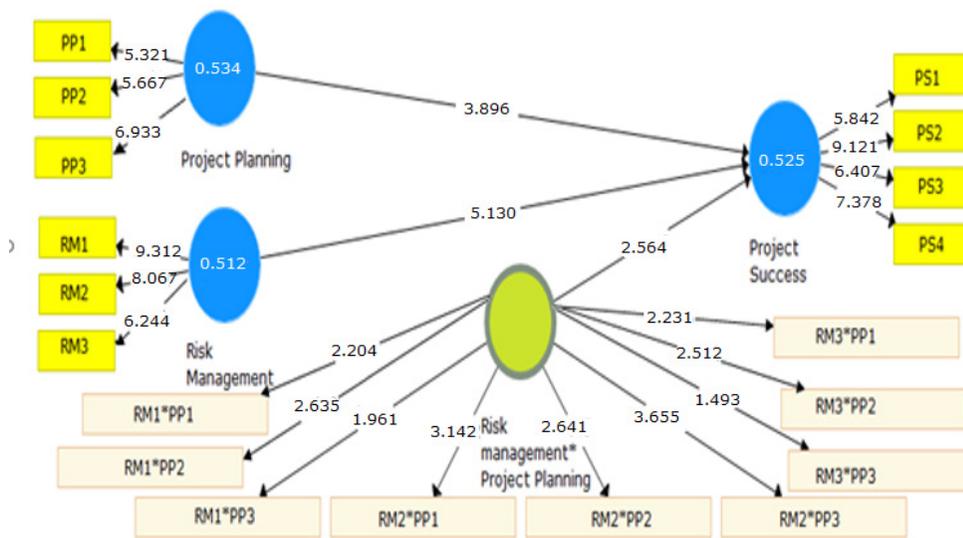


Fig. 3. Moderating effect of risk management on project planning and project success in the Pakistani construction industry

while AVE values in both economies were greater than 0.5. Thus, the measurement model is valid (Figs. 2 and 3). In the case of the Exploratory Factor Analysis (EFA), it was considered to follow the approach by Gaskin and Happell (2014) to measure the validity of the model. KMO and Bartlett test value=0.797 > 0.7 (acceptable), communalities extraction lies between 0.3 to 0.8, indicating the model is a good fit whereas the total variance was 62.3% for three items confirming the validity of the model.

4.2. STRUCTURAL MODEL

In the next step, the validation of the structural model was assessed based on three criteria for making the decision regarding the considered research hypotheses. This included the model evaluation through path coefficient criteria specifically intended for testing hypotheses, the coefficient of determination (R2) and the effect size (f2). The criteria in the path coefficient were assessed by considering t-value, which should be equal or greater than 1.96 at the 0.05 significance level. According to Imran, Haque & Rebilas (2018), the threshold t-value must be 1.96 while the probability value should be less than 0.05. Additionally, R2 reflects the regression or variability within the dependent variable caused by the considered predictor (Imran et al., 2018).

Tab. 3. Fornell-Larcker Criterion (validity values of constructs)

CONSTRUCTS	UNITED KINGDOM		
	PP	MR	PS
PP	0.781		
RM	0.691	0.724	
PS	0.712	0.661	0.776
PAKISTAN			
PP	0.726		
RM	0.747	0.768	
PS	0.703	0.596	0.765

Note: PP=Project Planning; RM=Risk Management; PS=Project Success

According to Hair et al. (2016), R2=0.75 reflects substantial variability while 0.50 indicates moderate variability and 0.25 is weak variability. In the present study, the R2 was acceptable with R2=0.761, indicating the variability of 76.1% in the dependent variable, which was caused by latent variables in the UK and R2=0.672 in Paki-stan, revealing the variability of 67.2% (Tab. 4). Lastly, Cohen et al. (2013) and Imran et al. (2018) explained that the effect size (f2) of up to 0.02 is small, 0.15 is moderate, and 0.35 is strong. The results are presented in Tab. 3 and Figs. 2 and 3.

Tab. 4. Results of the Structural Model

HYPOTHESIS	B	SD	T VALUE	DECISION	F2	R2
<b>United Kingdom</b>						
PP -> PS	.184	0.060	3.156	0.004**	0.160	0.761
RM -> PS	.204	0.037	5.621	0.000**	0.251	
RM*PP -> PS	.189	0.057	3.315	0.002**	0.371	
<b>Pakistan</b>						
PP -> PS	.198	0.051	3.896	0.041**	0.018	0.672
RM -> PS	.431	0.084	5.130	0.000**	0.211	
RM*PP -> PS	.277	0.108	2.564	0.024**	0.351	

Note: \*\*\* $p < 0.01$ , \*\* $p < 0.05$ , ns= nonsignificant ( $p > 0.05$ ) (Two Tail)

## 5. FINDINGS AND DISCUSSION

Findings of the present study confirmed that there is positive linkage between project planning and project success as the t-value was greater than 1.96 (UK=3.156 > 1.96; Fig. 2; PAK=3.896 > 1.96, Fig. 3, Tab. 4) while the p-value was less than alpha (UK=0.004 < 0.05; PAK=0.041 < 0.05, Table 4). Thus, due to statistically significant evidence, we fail to reject the hypothesis H1. As a result, this study supports the earlier work by Murphy et al. (1974), Naeem et al. (2018), and Sanvido et al. (1992). Hence, it confirms that better planning has a positive impact on the success of a project and enables project managers to adequately complete their projects. Results demonstrate that project success is positively affected by project planning and effective planning improves the performance of a construction business. The findings also confirm that appropriate planning for managing risks has been perceived to improve the possibilities of project success (Raz & Micheal, 2001). Nevertheless, the finding is significant in confirming the positive linkage between project planning and project success in the construction industry of contrasting economies.

Additionally, the findings confirmed that risk management had a positive significant association with the project success (UK=5.621 > 1.96; Fig. 2; PAK=5.130 > 1.96, Fig. 3, Tab. 4) while the p-value was less than alpha (UK=0.000 < 0.05; PAK=0.000 < 0.05, Tab. 4). Hence, in the light of the statistical evidence, we fail to reject the hypothesis H2. Therefore, there is a positive linkage between risk management and project success. The findings support the previous studies, including Lundin (1995); Naeem et al. (2018); Turner (2006); and Zhang (2007). The reason

behind this is evident: new innovative ideas help in managing risk to achieve research objectives, which leads to the success of a project. Risk management reduces the chances of adverse effects on the timely completion of a project. Nevertheless, risk management is likely to depend on the individual ability of the project manager. This conclusion confirms the work by Zhang (2007), stating that the project manager's ability, flexibility, robustness and adaptability are vital in the project success, which is the reason why proper planning is essential.

Another key objective of the paper was to investigate the moderating effect of risk management on project planning and project success. When the p-value was less than alpha (UK=0.002 < 0.05; PAK=0.024 < 0.05, Tab. 4), the statistical results (UK=3.315 > 1.96; Fig. 2; PAK=2.564 > 1.96, Fig. 3, Table 4) confirmed the hypothesis H3 could not be rejected because of statistically significant evidence that supported it. Hence, in the light of the evidence, this study supported the existing literature, especially works by Brannen & Salk (2000); Dalcher (2012); and Pinto & Slevin (1989). Previously, the work by Raz and Michael's (2001) established that planning risk management was an essential attribute of the successful implementation of project planning, that eventually led to the success of a project (Raz & Michael, 2001).

Furthermore, the size effect ( $f^2$ ) of project planning, risk management and project success are substantial in both Pakistan and the UK. Additionally, the variability of project success is explained to a greater extent by the variation within the project planning and risk management in construction businesses of both countries. In other words, adequate procedure considered for the management of project

risks and rational planning largely determine the success of a project.

## CONCLUSION AND RECOMMENDATIONS

In the light of the evidence, this study confirmed the moderating effect of risk management, which was highly statistically significant for project planning and project success of construction businesses operating in the economies of Pakistan and the United Kingdom. The study revealed that despite the difference in types of economies, challenges, variations and business trends were largely similar in the construction businesses of the UK and Pakistan. Therefore, the project planning and project success were largely positively moderated by risk management and the effect was similar in both economies. The size effect ( $f^2$ ) of the mediator was strong in terms of project planning and project success. Additionally, the study confirmed that project planning and risk management positively affected project success in different economies. Nevertheless, despite differences in structural policies, rules and regulations and management styles, adequate project planning and risk management practices were largely similar in the UK and Pakistan. The conceptual framework of the present study validates the model, according to which project risk management is a significant mediator of project planning and project success in the construction industry of distinctive economies.

The recommendations are derived from the findings of this study. It is suggested that the construction firms operating in Pakistan and the UK should consider appropriate strategic steps regarding financial, technical and human risks during the stages of planning and implementation to ensure the success of a project. In addition, the governments of both economies should consider the introduction of flexible tariffs and subsidies for construction businesses to provide them with sufficient contingency funds to deal with the uncertain environment. Moreover, the construction businesses should also consider the use of the simulation technique for training project managers so that they have sufficient skills to assess different types of risks and use this information to further improve project planning and execution, which would ensure the project success. It is also recommended that governments should work in close collaboration with construction businesses, especially

offering the environmental scanning, to address the uncertainty and risks so that more peripheral decision-making would emerge from using the latest and advanced tools and techniques for planning purposes.

In the future, researchers should consider the use of the present model in other sectors, including services and manufacturing businesses, so that the research framework could achieve higher generalization. The longitudinal panel study could be used to further explore the variations within different time intervals. In-depth interviews with project managers should be held to gain a deeper understanding about the moderating effect of risk management on project planning and project success to examine the better understand the impact on the work, worker and workplace. Ideally, the sample size is acceptable; however, it could be further improved to gain greater generalization. These considerations would further improve generalizability in future studies.

## LITERATURE

- Ahmad, M. S. (2012). Impact of organizational culture on performance management practices in Pakistan. *Business Intelligence Journal*, 5(1), 50-55.
- Arditi, D. (1985). Construction productivity improvement. *Journal of Construction Engineering and Management*, 111(1), 1-14. doi: 10.1061/(ASCE)0733-9364
- Aronson, Z. H., & Lechler, T. G. (2009). Contributing beyond the call of duty: examining the role of culture in fostering citizenship behavior and success in project-based work. *R&D Management*, 39(5), 444-460. doi: 10.1111/j.1467-9310.2009.00573.x
- Ashley, D. B., Lurie, C. S., & Jaselskis, E. J. (1987). Determinants of construction project success: a process review. *Project Management Journal*, 18(2), 69-79.
- Baccarini, D. (1999). The logical framework method for defining project success. *Project Management Journal*, 30(4), 25-32. doi: 10.1177/875697289903000405
- Boehm, B. W. (1991). Software risk management: principles and practices. *IEEE Software*, 8(1), 32-41.
- Bon, R., & Pietroforte, R. (1990). Historical Comparison of Construction Sectors in the United States, Japan, Italy, and Finland Using Input-Output Tables. *Construction Management and Economics*, 8, 233-247. doi: 10.1080/014461990000000021
- Brannen, M. Y., & Salk, J. E. (2000). Partnering across borders: Negotiating organizational culture in a GermanJapanese joint venture. *Human relations*, 53(4), 451-487. doi: 10.1177/0018726700534001
- British Innovation & Skills (2013). *UK Construction: An Economic Analysis of the Sector*. Retrieved from: [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/210060/bis-13-958-uk-construction-an-economic-analysis-of-sector.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/210060/bis-13-958-uk-construction-an-economic-analysis-of-sector.pdf)

- Carbone, T. A., & Tippett, D. D. (2004). Project risk management using the project risk FMEA. *Engineering Management Journal*, 16(4), 28-35. doi: 10.1080/10429247.2004.11415263
- Carvalho, M. M., & Rabechini, R. (2017). Can project sustainability management impact project success? An empirical study applying a contingent approach. *International Journal of Project Management*, 35(6), 1120-1132. doi: 10.1016/j.ijproman.2017.02.018
- Cleland, D. L., & Ireland, L. R. (2006). *Project management*. New York, United States: McGraw-Hill Professional.
- Cohen, J., Cohen, P., West S. G., & Aiken L. S. (2013). *Applied multiple regression/correlation analysis for the behavioral sciences*. United States: Routledge.
- Creasy, T., & Carnes, A. (2017). The effects of workplace bullying on team learning, innovation and project success as mediated through virtual and traditional team dynamics. *International Journal of Project Management*, 35(6), 964-977. doi: 10.1016/j.ijproman.2017.04.005
- Dakhil, A. (2013). *The Contribution of the Construction Industry to Economic Development in Libya*, Published Doctoral thesis. Retrieved from [http://researchonline.ljmu.ac.uk/4454/1/157472\\_2013Amelphd.pdf%20-2.pdf](http://researchonline.ljmu.ac.uk/4454/1/157472_2013Amelphd.pdf%20-2.pdf)
- Dalcher, D. (2012). Project management for the creation of organizational value. *Project Management Journal*, 43(3), 78-79. doi: 10.1002/pmj.21269
- Datta, S., & Mukherjee, S. K. (2001, June). Developing a risk management matrix for effective project planning an empirical study. *Project Management Journal*, 32(2). doi: 10.1177/875697280103200206
- De Wit, A. (1988). Measurement of project success. *International Journal of Project Management*, 6(3), 164-170. doi: 10.1016/0263-7863(88)90043-9
- Duncan, W. (2005). *A Guide to the Project Management Body of Knowledge*. Newton Square, Pennsylvania, United States: Project Management Institute.
- Dvir, D., Raz, T., & Shenhar, A. J. (2003). An empirical analysis of the relationship between project planning and project success. *International Journal of Project Management*, 21(2), 89-95. doi: 10.1016/S0263-7863(02)00012-1
- Ejdys, J. (2018). Building technology trust in ICT application at a University. *International Journal of Emerging Market*, 13(5), 980-997. doi: 10.1108/IJoEM-07-2017-0234
- Ejdys, J., & Halicka, K. (2018). Sustainable adaptation of new technology — the case of humanoids used for the care of older adults. *Sustainability*, 10(10), 3770. doi: 10.3390/su10103770
- Galvin, T., Gibbs, M., Sullivan, J., & Williams, C. (2014). Leadership competencies of project managers: An empirical study of emotional, intellectual, and managerial dimensions. *Journal of Economic Development, Management, IT, Finance, and Marketing*, 6(1), 35.
- Gazder, U., & Khan, R. A. (2018). Effect of Organizational Structures and Types of Construction on Perceptions of Factors Contributing to Project Failure in Pakistan. *Mehran University Research Journal of Engineering and Technology*, 37(1), 12.
- Hair Jr, J. F., Hult, G. T. M., Ringle, C., & Sarstedt, M. (2016). *A primer on partial least squares structural equation modeling (PLS-SEM)*. London, United Kingdom: Sage Publications.
- Haque, A. U., Aston, J., & Kozlovski, E. (2018). The impact of stressors on organisational commitment of managerial and non-managerial personnel in contrasting economies: Evidences from Canada and Pakistan. *International Journal of Business*, 23(2), 152-168.
- Idoro, G. (2012). Evaluating levels of project planning and their effects on performance in the Nigerian construction industry. *Construction Economics and Building*, 9(2), 39-50. doi: 10.5130/AJCEB.v9i2.3020
- Imran, M., Haque, A. U., & Rebilas, R. (2018). Performance Appraisal Politics and Employees' Performance in Distinctive Economies. *Journal of Management Studies*, 18(2), 135-150. doi: 10.17512/pjms.2018.18.2.11
- Imran, M., Jian, Z., Haque, A. U., Urbański, M., & Nair, S. L. S. (2018). Determinants of Firm's Export Performance in China's Automobile Industry. *Sustainability*, 10(11), 1-23. doi: 10.3390/su10114078
- Irfan, M., & Hassan, M. (2017). The effect of project success on corporate reputation of the public sector organizations in Pakistan. *International Journal of Economic Management*, 11, 815-832.
- Khan, R. A. (2008). *Role of Construction Sector in Economic Growth: Empirical Evidence from Pakistan Economy*. First International Conference on Construction in Developing Countries, Pakistan, 279-290.
- Khan, R. A., & Gul, W. (2017). *Empirical study of critical risk factors causing delays in construction projects*. Paper presented at the Intelligent Data Acquisition and Advanced Computing Systems: Technology and Applications (IDAACS), 9th IEEE International Conference.
- Gemuenden, H. G., & Lechler, T. G. (1997). *Success factors of project management: The critical few - An empirical investigation*. Conference: Innovation in Technology Management - The Key to Global Leadership. PICMET '97: Portland International Conference on Management and Technology, IEEE. doi: 10.1109/PICMET.1997.653418
- Lemma, T. (2014). *The role of project planning on project performance in Ethiopia*. A Dissertation of MA Thesis.
- Lundin, R. A., & Söderholm, A. (1995). A theory of the temporary organization. *Scandinavian Journal of Management*, 11(4), 437-455. doi: 10.1016/0956-5221(95)00036-U
- Martens, C. D. P., Machado, F. J., Martens, M. L., & de Freitas, H. M. R. (2018). Linking entrepreneurial orientation to project success. *International Journal of Project Management*, 36(2), 255-266. doi: 10.1016/j.ijproman.2017.10.005
- Meredith, J. R., & Mantel, S. J. (1995). *Project Management: A Managerial Approach*. 3rd Edition, London, United Kingdom: John Wiley & Sons.
- Meyer, D., Masehla, T. M., & Kot, S. (2017). The relationship between economic growth and economic development: A regional assessment in South Africa.

- Journal of Advanced Research in Law and Economics*, 8(4), 1377-1387. doi:10.14505/jarle.v8.4(26).38
- Müller, R., & Jugdev, K. (2012). Critical success factors in projects: Pinto, Slevin, and Prescott—the elucidation of project success. *International Journal of Managing Projects in Business*, 5(4), 757-775. doi: 10.1108/17538371211269040
- Murphy, D. C., Baker, B. N., & Fisher, D. (1974). *Determinants of project success*. Grant No. NGR 22-003-028 for National Aeronautics and Space Administration, Management Institute, School of Management, Boston College, Boston, MA.
- Naeem, S., Khanzada, B., Mubashir, T., & Sohail, H. (2018). Impact of Project Planning on Project Success with Mediating Role of Risk Management and Moderating Role of Organizational Culture. *International Journal of Business and Social Science*, 9(1), 88-98.
- Packendorff, J. (1995). Inquiring into the temporary organization: new directions for project management research. *Scandinavian Journal of Management*, 11(4), 319-333. doi: 10.1016/0956-5221(95)00018-Q
- Paré, G., Sicotte, C., Jaana, M., & Girouard, D. (2008). Prioritizing the risk factors influencing the success of clinical information system projects. *Methods of Information in Medicine*, 47(03), 251-259. doi: 10.3414/ME0512
- Parker, D., & Mobey, A. (2004). Action research to explore perceptions of risk in project management. *International Journal of Productivity and Performance Management*, 53(1), 18-32. doi: 10.1108/17410400410509932
- Pinto, J. K., & Prescott, J. (1998). Variations in critical success factors over the stages in the project life cycles. *Journal of Management*, 14(1), 5-18. doi: 10.1177/014920638801400102
- Pinto, M. B., & Pinto, J. K. (1991). Determinants of cross-functional cooperation in the project implementation process. *Project Management Journal*, 22(2), 13-20.
- PSDF (2013). *Construction Sector of Pakistan*. Retrieved from <https://www.psdf.org.pk/wp-content/uploads/2014/10/Construction-Report.pdf>
- Rabechini, R. J., & de Carvalho, M. M. (2013). Understanding the impact of project risk management on project performance: An empirical study. *Journal of Technology Management & Innovation*, 8, 64-78.
- Rahrovani, Y., Chan, Y. E., & Pinsonneault, A. (2014). Determinants of IS Planning Comprehensiveness. *Communications of the Association for Information Systems*, 34(59), 1133-1155. doi: 10.17705/1CAIS.03459
- Ramanujam, V., & Venkatraman, N. (1986). Measurement of business performance in strategy research: A comparison of approaches. *Academy of Management Review*, 11, 801-814. doi: 10.2307/258398
- Ramirez-Cortés, F., Holm-Nielsen, N. B., Ishizawa, O. A., & Lam, J. C. (2012). *The missing link: Disaster risk information for urban development policies and programs*. In Sixth Urban Research and Knowledge Symposium, Rethinking Cities: Framing the Future, World Bank.
- Raz, T., & Michael, E. (2001). Use and benefits of tools for project risk management. *International Journal of Project Management*, 19(1), 9-17. doi: 10.1016/S0263-7863(99)00036-8
- Raz, T., Shenhar, A. J., & Dvir, D. (2002). Risk Management, Project Success, and Technological Uncertainty. *R&D Management*, 32(2), 101-109. doi: 10.1111/1467-9310.00243
- Rezvani, A., Chang, A., Wiewiora, A., Ashkanasy, N. M., Jordan, P. J., & Zolin, R. (2016). Manager emotional intelligence and project success: The mediating role of job satisfaction and trust. *International Journal of Project Management*, 34(7), 1112-1122. doi: 10.1016/j.ijproman.2016.05.012
- Rhyne, L. C. (1986). The relationship of strategic planning to financial performance. *Strategic Management Journal*, 7(5), 423-436. doi: 10.1002/smj.4250070504
- Sanvido, V., Grobler, F., Parfitt, K., Guvenis, M., & Coyle, M. (1992). Critical success factors for construction projects. *Journal of Construction Engineering and Management*, 118(1), 94-111. doi: 10.1061/(ASCE)0733-9364(1992)118:1(94)
- Slevin, D. P., & Pinto, J. K. (1986). The project implementation profile. *Project Management Journal*, 17(4), 57-70.
- Turner, J. R. (2006). Towards a theory of project management: The nature of the project governance and project management. *International Journal of Project Management*, 24(2), 93-95. doi: 10.1016/j.ijproman.2005.11.008
- UK Government Construction Strategy, (2011). *Government Construction Strategy*, UK Government Official Cabinet Office, White Papers. Retrieved from [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/61152/Government-Construction-Strategy\\_0.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/61152/Government-Construction-Strategy_0.pdf)
- Wasim, A. (2018). *PM Khan to personally monitor govt's 5 million housing scheme*. Dawn. Retrieved from <https://www.dawn.com/news/1432094>
- Wu, G., Liu, C., Zhao, X., & Zuo, J. (2017). Investigating the relationship between communication-conflict interaction and project success among construction project teams. *International Journal of Project Management*, 35(8), 1466-1482. doi: 10.1016/j.ijproman.2017.08.006
- Wu, G., Zhao, X., Zuo, J., & Zillante, G. (2018). Effects of contractual flexibility on conflict and project success in megaprojects. *International Journal of Conflict Management*, 29(2), 253-278. doi: 10.1108/IJCM-06-2017-0051
- Yang, L.-R., Chen, J.-H., Wu, K.-S., Huang, D.-M., & Cheng, C.-H. (2015). A framework for evaluating relationship among HRM practices, project success and organizational benefit. *Quality & Quantity*, 49(3), 1039-1061.
- Zhang, H. (2007). A redefinition of the project risk process: Using vulnerability to open up the event-consequence link. *International Journal of Project Management*, 25(7), 694-701. doi: 10.1016/j.ijproman.2007.02.004
- Zehra, N., & Faizan, R. (2017). The Impact of Occupational Stress on Employees at Project Based Organizations (PBOs) in Pakistan. *International Journal of Applied Business and Management Studies*, 2(1), 1-9.

- Zwikael, O., Pathak, R. D., Singh, G., & Ahmed, S. (2014). The moderating effect of risk on the relationship between planning and success. *International Journal of Project Management*, 32(3), 435-441. doi: 10.1016/j.ijproman.2013.07.002
- Zwikael, O., & Smyrk, J. (2012). A general framework for gauging the performance of initiatives to enhance organizational value. *British Journal of Management*, 23(S1). doi: 10.1111/j.1467-8551.2012.00823.x