International Journal of Psychosocial Rehabilitation, Vol. 24, Issue 03, 2020
ISSN: 1475-7192

Investigating the Influence of Human Success Factors on Success Criteria and the Moderating Effect of Project Characteristics on this Relationship in the UAE Construction Industry

Jaafer Y. Altarawneh, Behrang Samadi and Behrooz Gharleghi

Abstract--- *This paper attempted to examined the relationship between human factors such as project managers and team members competencies and projects success criteria, and examine the moderating role of project characteristics on this relationship in the context of construction industry within the United Arab Emirate. The human success factors were evaluated by their influence on projects success criteria on eight criteria; schedule, budget, quality, client and team member needs, safety, absence of conflict and achieving goal. 15 indicators were identified through literature review and grouped into three distinct factors. A questionnaire has formed the basis of this research. The partial least squares (PLS) technique was applied to analyse the causal relationships between constructs and the moderating effect using the software application Smart-PLS 3.0. The paper revealed the influence of each human factor towards the success criteria of construction projects in the United Arab Emirates by valuing their standardized structural path and the moderating effect of project characteristics on the relationship between human factors and success criteria. Based on the results, project manager competencies factor has the highest influence on the success criteria of construction projects in the United Arab Emirates, and the moderating influence of project characteristics has a significant moderator effects of competencies within the construction project organization. These findings are expected to be significant contributions to UAE construction industry in toward the success completion of construction projects*

Keywords--- *Project, Construction, Competency, Characteristics, Success Criteria.*

I. INTRODUCTION

The construction industry represents one of the most important sectors and is considered to be one of the main contributors to the socio-economic growth of a country (Elawi et al., 2016). Economically, it shares intensively in the improvement of the overall GDP of a country (Alzara et al., 2016). Socially, it also develops the quality of life by providing both necessary and luxury infrastructure such as roads, shopping malls, water supply, power supply, sport facilities, hospitals, schools and other basic and enhanced facilities (Aziz et al., 2016).

The construction sector worldwide in general is a multi-billion-dollar sector that usually develops in terms of its size and complexity of technology (Doloi et al., 2012). The United Arab Emirates (UAE) is undergoing a high level

Jaafer Y. Altarawneh, Faculty of Business and Management, Asia Pacific University of Technology and Innovation (A.P.U), Malaysia. E-mail: Jafery711@yahoo.com
Behrang Samadi, Faculty of Business and Management, Asia Pacific University of Technology and Innovation (A.P.U), Malaysia. E-mail: dr.behrang@apu.edu.my
Behrooz Gharleghi, Faculty of Business and Management, Asia Pacific University of Technology and Innovation (A.P.U), Malaysia. E-mail: bgharleghi@doc-research.org

DOI: 10.37200/IJPR/V24I3/PR200979
Received: 20 Jan 2020 | Revised: 06 Feb 2020 | Accepted: 12 Feb 2020

of development in all infrastructure fields, including both urban and rural areas (Ali and Beheiry, 2016).The construction industry is large, complex, volatile, risky, and needs remarkable capital expenses (Assaf and Al-Hejji, 2006; Tumi et al., 2009; Yusuwan and Adnan, 2013). It has great difficulties delivering within its scheduled project time, allocated budget, and in outstanding quality (Elawi et al., 2016).The purpose of this study is to investigate the relationship between human factors such as project managers and team members competencies on projects success criteria and examine the moderating role of project characteristics on this relationship in the domain of construction projects in the United Arab Emirate.

II. LITERATURE REVIEW

2.1. Human related success factors

2.1.1. Project Manager Competency (PMC)

Project managers (PMs) are the key people in the projects (Tabish & Jha, 2012). They demonstrate multi-dimensional abilities including interpersonal, technical, and administrative skills (Fortune and White, 2006; Gudiene et al., 2013; Ihuah et al., 2014). The most important element is that PMs clearly understand their role as project leaders; clearly defining their extent of involvement, and the authority and control, they exercise over personnel (Ihuah et al., 2014). According to several researchers (Gudiene et al., 2013; Tabish & Jha, 2012; Toor & Ogunlana, 2009), the main competency fields of the project manager are capability in terms of the proper technical background that encourages respect from team players, technical experience, coordinating, mutual trust and understanding, and decision-making effectiveness. The main competency fields of the project manager and related items together with their literature sources are listed in "Table 1".

Table 1: Competency fields of the project manager

Items	Factor measures	Literature Source
PMC1	Technical capability	Tan and Ghazali (2011); Gudienė et al (2013); Alzahrani and Emsley (2013); Gudienė et al (2014)
PMC2	Experience	Lehtiranta et al. (2012); Yong and Mustaffa (2013); Alzahrani and Emsley (2013); Verburg et al (2013); Windapo and Cattell (2013); Cserháti and Szabó (2014); Wibowo and Alfen (2014)
PMC3	Coordinating abilities	Tan and Ghazali (2011); Yang et al (2011); Lehtiranta et al (2012); Rahman et al (2012); Alzahrani and Emsley (2013); Gudienė et al (2013); Hwang et al (2013); Gudienė et al (2014); Aliaa et al (2014);
PMC4	Mutual trust and understanding	Gudienė et al (2014); Gudienė et al (2013); Chen et al (2012); Famakin et al (2012); Tan and Ghazali (2011); Verburg et al (2013); Chen and Chen (2007); Yong and Mustaffa (2013)
PMC5	Decision-making effectiveness	Tan and Ghazali (2011); Yu and Kwon (2011); Meng (2012); Lehtiranta et al (2012); Gudienė et al (2013); Gudienė et al (2014); Ihuah et al (2014)

2.1.2. Project Team member's Competency (PTC)

Several researchers highlighted the capabilities that members possess in general, including skills and experience, retain appropriate interpersonal skills, coordination skills and a good working relationship with the owner, the Project Team Members (PTM) and the stakeholders, and maintain a healthy work attitude (Chan et al., 2004; Gudiene et al., 2013; Ihuah et al., 2014; Jha & Iyer, 2007; Tabish and Jha, 2012; Yang et al., 2011). Furthermore,

DOI: 10.37200/IJPR/V24I3/PR200979
Received: 20 Jan 2020 | Revised: 06 Feb 2020 | Accepted: 12 Feb 2020

Famakin et al. (2012), and Gudienė et al. (2013) pointed out the PTMs responsibility for organizing, selecting, and defining the responsibilities of the project resources. Also, according to Toor and Ogunlana (2009), monitoring the progress, identifying problems, communicating the status of interfaces to contributors, and initiating and co-coordinating corrective action come under the responsibility of the PTMs. Toor and Ogunlana (2009), and Gudienė et al. (2014) opined that project team members' capabilities include making effective decisions, and convincing the project participants to cooperate with each other guided by the proper troubleshooting of project related issues (Toor and Ogunlana, 2009; Gudienė et al., 2014). Project Team members' Capabilities (PTC) and related items together with their literature sources are listed in "Table 2".

Table 2: Project Team members' Competencies (PTC) and related items together with their literature sources

Items	Factor measures	Literature Source
PTC1	Technical capabilities	Chen and Chen (2007); Tan and Ghazali (2011); Gudienė et al. (2013); Alzahrani and Emsley (2013); Gudienė et al. (2014).
PTC2	Decision-making effectiveness	Tan and Ghazali (2011); Yu and Kwon (2011); Meng (2012); Lehtiranta et al. (2012); Gudienė et al. (2013); Gudienė et al. (2014); Ihuah et al. (2014)
PTC3	Adequate communication among all project participants	Famakin et al. (2012); Meng (2012); Lehtiranta et al. (2012); Yong and Mustaffa (2013); Gudienė et al. (2013); Ihuah et al. (2014); Cserháti and Szabó (2014); Zou et al. (2014)
PTC4	Effective and timely conflict resolution	Iyer and Jha (2006); Park (2009); Yang et al. (2011); Yu and Kwon (2011); Famakin et al. (2012); Gudienė et al. (2013); Gudienė et al. (2014).
PTC5	Effective control, monitoring and troubleshooting	Tan and Ghazali (2011); Chen et al. (2012); Gudienė et al (2013); Yong and Mustaffa (2013); Alias et al. (2014); Gudienė et al. (2014); Ihuah et al. (2014); Zavadskas et al. (2014)

2.2. Project Characteristics (PCs) as moderator

In the reviewed literature, project characteristics have long been unconsidered as being critical success factors. In one of the few studies available, Thi and Swierczek (2010) revealed schedule duration and urgency to be critical factors. However, many construction projects fail due to problems within projects like the value and size of the projects (Gudienė et al., 2013; Gudienė et al., 2014Shehu et al., 2014; Yang et al., 2015).Belassi and Tukel (1996) specified the size and the value of a project, the uniqueness of project activities, the density of a project network, and the urgency of the project outcome. Belassi and Tukel (1996) found that many large projects exceed their deadlines. It is quite easy for the project manager to manage their projects in terms of planning, scheduling, and monitoring if a project has more standard tasks rather than those of a unique nature (Ihuah et al., 2014). Also, it is highlighted that project density has a significant influence on the overall performance(Yong and Mustaffa, 2013). That is, the density usually influences the allocation of resources including machinery and man-hours. Because of resource existing constraints, project managers are often enforced to delay activities competing for the same resources, which, in turn, result in delays to the completion of the project.

Several researchers highlighted that the urgency of a project relates to success (Yang et al., 2011; Gudienė et al., 2013). Pinto and Slevin (1989) defined urgency as the need to conduct the construction project as soon as possible.

DOI: 10.37200/IJPR/V24I3/PR200979
Received: 20 Jan 2020 | Revised: 06 Feb 2020 | Accepted: 12 Feb 2020

In several cases, project performance criteria are not met due to the urgency of a project as in these situations, not enough time is allocated for planning and scheduling projects, and, as a result, they are more likely to exceed the time and fail(Thi and Swierczek, 2010). The items relating to the Project Characteristics (PCs) and their literature sources are listed in "Table 3".

Table 3: Project characteristics (PC) and their literature sources

Items	Factor measures	Literature Source
PC1	Value	Gudienė et al. (2013); Hwang et al. (2013); Gudienė et al. (2014Yang et al. (2015)
PC2	Size	Gudienė et al. (2013); Gudienė et al. (2014); Shehu et al. (2014); Yang et al. (2015)
PC3	Complexity and uniqueness	Tan and Ghazali (2011); Yang et al (2011); Gudienė et al (2013); Yong and Mustaffa (2013); Gudienė et al (2014)
PC4	Urgency	Tan and Ghazali (2011); Yang et al. (2011); Gudienė et al. (2013); Yong and Mustaffa (2013); Gudienė et al. (2014)
PC5	Type	Yong and Mustaffa (2013); Yang et al. (2011); Gudienė et al. (2013); Gudienė et al. (2014); Locatelli et al. (2014);Shehu et al. (2014); Yang et al. (2015)

2.3. Project Success Criteria (PSC)

Earlier studies offer possible measures about project success criteria; however, the assessment of project success may differbased on the evaluator opinion (Thi and Swierczek, 2010). According to Long et al. (2004),a success criterion is defined by “the measures by which success or failure of a project or business will be judged”. Ahadzie et al. (2008) highlighted that there is noreliable explanation of the term project success. However, it is agreed that the criteria on which project is considered successful must be decided at the early stages of project commencement to avoid any differences might be raised between project teams. According to Bakar, A.H.A. et al. (2011), projects can be judged if a number of predefined activities concluded in accordance to specific objectives. Alzahrani and Emsley (2013) emphasised on the conventional success measures or the so-called iron triangle of time, cost, and quality to be the leading performance indicator in construction projects. Project success criteria differ from project to project and depend on people judgment (Müller and Turner, 2007). However, several researchers agreed to define project success as the completion of a project within the constraint of predefined set of measures include (Alias et al., 2014; Mukhtar et al., 2017; Muller et al., 2012; Cserháti andSzabó et al., 2014; Thi and Swierczek, 2010; Ahadzie et al., 2008; Jha and Iyer, 2007; Toor and Ogunlana, 2009; Müller and Turner, 2017):

- **PSC1**:Completion of project on schedule
- **PSC2**:Completion of project on agreed budget
- **PSC3**:Completion of project in accordance to agreed quality specifications
- **PSC4**:The project satisfies the client needs
- **PSC5**:The projects satisfies the team members needs
- **PSC6**:Completion of the project safely
- **PSC7**:Absence of conflict among the project parties
- **PSC8**:Achieving the goals of project

DOI: 10.37200/IJPR/V24I3/PR200979
Received: 20 Jan 2020 | Revised: 06 Feb 2020 | Accepted: 12 Feb 2020

III. RESEARCH METHODOLOGY

This study adopted Quantitative method of cross-sectional design.The data collection instrument was a questionnaire that was constructed particularly for this study created on the analysis of previous studiestargeted the research field to meet the study objectives. Data collection process accomplished mainly through questionnaire survey targeting participants from construction organisations (i,e., project managers, engineers,..) operating in local, national, and multinational construction organisation in the United Arab Emirates (UAE). Prior distribution the final version of the main questionnaire, a pilot study was conducted to ensure validity and reliability of the questionnaire. This study used partial least squares (PLS) path modeling and use of Smart PLS3, therefore the theoretical model was established as suggested by Ringle et al. (2005). According to Vinzi et al. (2010), the PLS path modeling is realised as a statistical technique "entailed to evaluate a network of causal relationships, based on a theoretical model, connecting two or more latent composite concepts, which each is measured through a number of observable indicators". The PLS path modeling is considered to be the most suitable method for this study for the following features. First, PLS path modeling owns high prospect of assessing the relationships among the constructs (structural model) and the relationships between the indicators and their corresponding latent constructs (measurement model) at the same time (Duarte and Raposo, 2010). Second, PLS path modeling is considered as the preferred method for multivariate analysis in social research in particular, such as technology management and operations (Hair et. al.,2011).

Data analysis was performed through two main stages. The first stage included conducting the preliminary data analysis. This process is very important to ensure that the data adequately meet the basic assumptions in using SEM. The second phase applied the two stages of SEM. The first stage included the establishment of measurement models for the latent constructs in the research. After confirming the uni-dimensionality, reliability and validity of the constructs in the first stage, the second stage developed to test the research hypotheses through developing the structural models.

IV. RESEARCH HYPOTHESIS

Several researchers have studied the influence of Human related factors such as project managers and project team members competencies on the project success (Alzahrani and Emsley, 2013; Gudienė et al.,2014; Cserháti and Szabó, 2014; Alias et al., 2014; Tan and Ghazali, 2011; Gudienė et al., 2013; Yong and Mustaffa, 2013). Gudienė et al. (2013) perceived project manger competencies as an important factor that play a core role toward project success. Similarly, Cserháti and Szabó (2014)found that a well established skills of project team members positively influence project success. In other words, tendency of success will be stronger for construction project that have assigned proper manpower resources in term of project manager and team members. Hence, the author suggested that competencies of both project manager and project team will positively influence project success, because adequate capabilities will assist the on-time delivery of projects within budget and without altering quality expectations. Research also suggested that project characteristics are positively related to project success criteria. For example, project characteristics are connected with all aspects of construction activities, such as urgency, density, and Complexity and uniqueness. Theoretically, project characteristics might moderate the relationship

DOI: 10.37200/IJPR/V24I3/PR200979
Received: 20 Jan 2020 | Revised: 06 Feb 2020 | Accepted: 12 Feb 2020

among project manager and project team members competencies with project success criteria in various ways "Fig. 1".That is, because of resource existing constraints, project managers are often enforced to delay activities competing for the same resources, which, in turn, result in delays to the completion of the project(Thi and Swierczek, 2010).

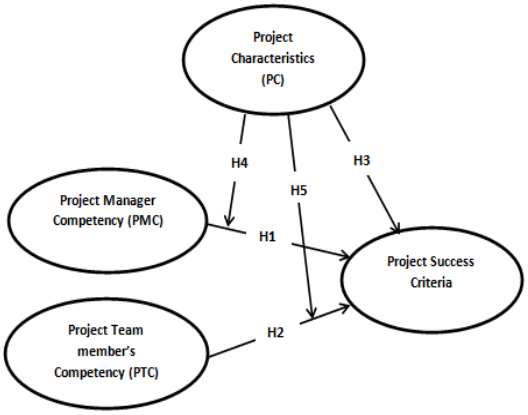

Fig. 1: Conceptual model

Following the intensive literature review, the following hypotheses were formulated and presented in “Table 4”.

Table 4: Research hypotheses

Code	Description
H1	Project Manager Competency (PMC) has a positive relationship with Project Success Criteria (PSC)
H2	Project Team member’s Competency (PTC) has a positive relationship with Project Success Criteria (PSC)
H3	Project Characteristics (PC) positively moderate Project Success Criteria (PSC)
H4	Project Characteristics (PCs) positively moderate the relationship between Project Manager Competency (PMC) and Project Success Criteria (PSC)
H5	Project Characteristics (PCs) positively moderate the relationship between Project Team member’s Competency (PTC) and Project Success Criteria (PSC)

V. Analysis and Results

5.1. Data collection and sample

This is a cross-sectional study. Data for this study were collected from 323construction professionals and experts (i.e., all engineers of varying disciplines who serve as project managers, mechanical engineers, electrical engineers, civil engineers, designers or field supervisors and have at least five years’ experience in water infrastructure construction projects.) working in construction industry in the United Arab Emirates. This study used Smart-PLS 3.0 embedded in structural equation modeling (SEM). According to Iacobucci (2010), “In terms of bias reduction and even just getting the model to run, some authors found that the added benefit that with three or more indicators per factor, a sample size of 100 will usually be sufficient for convergence, and a sample size of 150 will usually be sufficient for a convergent and proper solution.” However, for the purpose of sampling, and considering an average

DOI: 10.37200/IJPR/V24I3/PR200979
Received: 20 Jan 2020 | Revised: 06 Feb 2020 | Accepted: 12 Feb 2020

estimated response rate of 40% based on obtainable average rate in similar researches in similar field, a total number of 415 questionnaires were distributed among experts working in randomly selected organisations working in construction field. As a result of total number of 323 completed questionnaire sets were received back with a response rate of 77.8%. Collected questionnaires were analyzed using Statistical Package for Social Science (SPSS) software version 23 for evaluating the demographic information of the respondents as summarized in "Table 5".

Table 5: Demographic information of respondents

Group	Frequency	Percentage
Experience		
5-12 years	94	29.1
13-20 years	166	51.4
More than 20 years	63	19.5
Age		
21-30 years	33	10.2
31-40 years	105	32.5
41-50 years	119	36.8
51-60 years	44	13.6
Above 61 years	22	6.8
Area		
Construction Management	51	15.8
Architectural	20	6.2
Civil & Structure (C&S)	128	39.6
Mechanical & Electrical (M&E)	105	32.5
Quantity Surveyor (QS)	19	5.9
Education		
Diploma	18	5.6
Bachelor degree	242	74.9
Master degree	52	16.1
Ph.D.	11	3.4

5.2. Measurement Model (CFA) – Stage 1 of SEM

The measurement model or confirmatory factor analysis (CFA) is used to determine relations among manifested or observed and latent or unobserved variables (Hair et al., 2016). Therefore, the measurement model could be used to define the method in which latent or unobserved variables are assessed in terms of the manifest variables (Ho, 2006). In the CFA models, individual item reliability, internal consistency reliability, and discriminant validity were determined. First, individual item reliability was assessed by analyzing the outer loadings of each construct's measure (Hair et al., 2016).

Following the rule of thumb for holding items with loadings above 0.50 (Bagozzi et al., 1998), the entire model items remained as they showed loading values between 0.701and 0.842 as shown in "Table 6".Also, it shows the element that was used to evaluate Project Manager Competency (PMC) and Project Team member's Competency

DOI: 10.37200/IJPR/V24I3/PR200979
Received: 20 Jan 2020 | Revised: 06 Feb 2020 | Accepted: 12 Feb 2020

(PTC), while Project Success Criteria (PSC) were assessed with eight indicators, and Project Characteristics (PC) being the moderator evaluated as a one-dimensional construct.

Then, the composite reliability and Cronbach's alpha coefficients were used to determine the internal consistency reliability of measures. Following the rule of thumb as suggested by Bagozzi and Yi (1988), the reading of internal consistency reliability with the use of Cronbach's alpha and the composite reliability coefficients must be at least0.70 or more. "Table 6"portrays the composite reliability and Cronbach's alpha coefficients for the latent constructs. As showed in "Table 6", the composite reliability coefficient of each latent construct ranged from 0.893 to 0.922, and ranged from 0.851 to 0.894 for Cronbach's alpha coefficient. Since these values exceeded the minimum threshold of 0.7 for all constructs as recommended by Bagozzi and Yi (1988), then the consistency reliability of the measures used in this study was considered as adequate.

Table 6: Measurement model assessment result

Construct	Item	Factor Loading	Average Variance Extracted (AVE)	Composite Reliability (CR)	Internal Reliability Cronbach's Alpha
Project Manager's Competency (PMC)	PMC1	0.789	0.665	0.908	0.874
	PMC2	0.812			
	PMC3	0.812			
	PMC4	0.838			
	PMC5	0.825			
Project Team's member Competency (PTC)	PTC1	0.750	0.626	0.893	0.851
	PTC2	0.803			
	PTC3	0.800			
	PTC4	0.806			
	PTC5	0.796			
Project Characteristics (PC)	PC1	0.827	0.702	0.922	0.894
	PC2	0.842			
	PC3	0.841			
	PC4	0.838			
	PC5	0.840			
Project Success Criteria (PSC)	PSC1	0.703	0.567	0.913	0.890
	PSC2	0.796			
	PSC3	0.799			
	PSC4	0.747			
	PSC5	0.771			
	PSC6	0.701			
	PSC7	0.768			
	PSC8	0.736			

Finally, discriminant validity was evaluated using average variance extracted (AVE) as recommended by Fornell and Larcker (1981). This was achieved by equating the correlations among the latent constructs, which is obtained with the square root of the AVE (Fornell and Bookstein, 1982). Thus, to reach satisfactory discriminant validity, Fornell and Larcker (1981) proposed that the square root of the AVE must be greater than the correlations between the latent. Fornell and Larcker (1981) further suggested that the cross-loadings on the related construct should be greater than any of its cross-loadings on other constructs. As shown in "Table 7", the square roots of the AVEs were all greater than the correlations among the latent constructs. Thus, it can be concluded that proposed measurement model has adequate discriminant validity.

DOI: 10.37200/IJPR/V24I3/PR200979
Received: 20 Jan 2020 | Revised: 06 Feb 2020 | Accepted: 12 Feb 2020

Table 7: Discriminant validity (correlations among latent variables)

	PC	PMC	PSC	P
PC	**0.838**			
PMC	0.603	**0.815**		
PSC	0.531	0.571	**0.753**	
PTC	0.493	0.638	0.511	**0.**

5.3. Structural Models - Stage 2 of SEM

After validating the measurement model, demonstration of the structural model can be carried out by identifying the relationships between the constructs. The structural model gives details on the links between the variables. It shows the particular details of the relationship among the independent variables and dependent variables (Hair et al., 2016; Ho, 2006). Assessment of the structural model attentions firstly on the overall model fit, followed by the size, direction and significance of the hypothesized parameter estimates, as shown by the one-headed arrows in the path diagrams (Hair et al., 2016).

5.3.1 Direct Effects of Constructs

In the structural model, the direct causal effects of Project Manager's Competency (PMC), Project Team's member Competency (PTC)and Project Characteristics (PC) on Project Success Criteria (PSC) were examined. These effects refer to the hypotheses namely H1, H2 and H5 respectively. The structural model for examining the direct effects of the hypothesized variables is summarized in "Fig. 2".

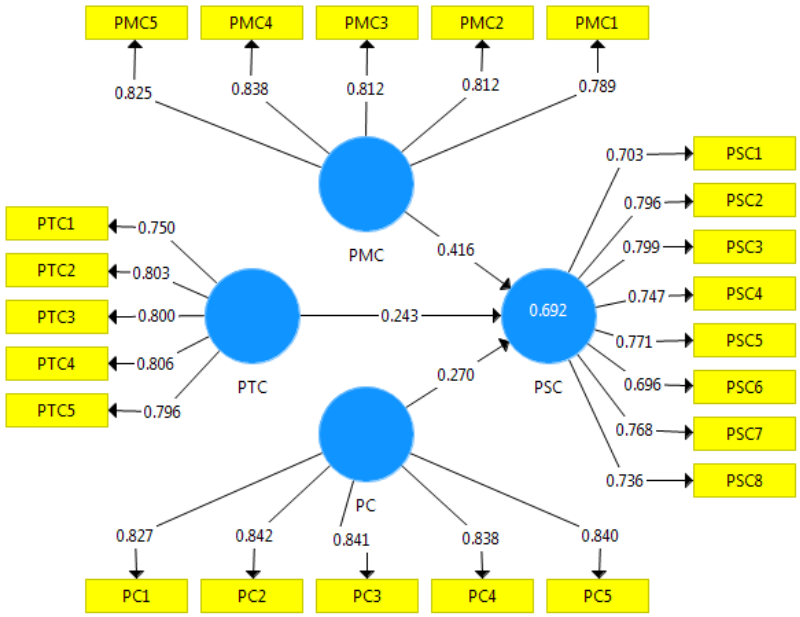

Fig. 2: PLS Analysis of the Structural Model for Direct Effects

The value of coefficient of determination (R^2) for Project Success Criteria (PSC) was 0.692. This indicates, 69.2 percent of variations in Project Success Criteria (PSC) are explained by the predictors of Project Manager's Competency (PMC), Project Team's member Competency (PTC) and project characteristics (PC).Overall findings showed that the R^2 value of 0.692 is very close to the substantial condition proposed by Hair et al. (2011) and

DOI: 10.37200/IJPR/V24I3/PR200979
Received: 20 Jan 2020 | Revised: 06 Feb 2020 | Accepted: 12 Feb 2020

Henseler et al. (2009) which shows that the developed model has a substantial explaining power. According toHair et al. (2011) and Henseler et al. (2009),R^2 is considered as an acceptable, with 0.75, 0.50,0.25, respectively, describing substantial, moderate, or weak levels of predictive accuracy.

The values of predictive of relevance (Q2) for Critical Project Success Criteria (PSC) was 0.364, far greater than zero, which refers to predictive relevance of the model as recommended by Chin (2010).Hence, the model exhibits acceptable fit and high predictive relevance. The coefficient parameters estimates are then examined to test the hypothesized direct effects of the variables, which were addressed in "Table 8".

Table 8: Examining Results of Hypothesized Direct Effects of the Constructs

Path Shape	Path Coefficient	Standard Error	T-value	P-value	Hypothesis Result
PMC ◊ PSC	0.416	0.028	6.761	0.000	H1) Supported
PTC ◊ PSC	0.243	0.023	5.201	0.000	H2) Supported
PC ◊ PSC	0.270	0.025	5.661	0.000	H5) Supported

As presented in "Table 8", the t-value and p-value of Project Manager's Competency (PMC) in predicting the Project Success Criteria (PSC) were 6.761and 0.000 respectively. This means that the probability of getting a t-value as large as 6.761in absolute value is 0.000. That is, the regression weight for Manager's Competency (PMC) in the prediction of Project Success Criteria (PSC) is significantly different from zero at the 0.001 level (two-tailed). Thus, H1 was supported. The path coefficient was 0.416, indicating a positive relationship. In simialr way, the t-value and p-value of Project Team's member Competency (PTC) in predicting the Project Success Criteria (PSC) were 5.201and 0.000 respectively. It means that the probability of getting a t-value as large as 5.201in absolute value is 0.000. In other words, the regression weight for Project Team's member Competency (PTC) in the prediction of Project Success Criteria (PSC) is significantly different from zero at the 0.001 level (two-tailed). Thus, H2 was supported. The path coefficient was 0.243, indicating a positive relationship. It means, when Project Team's member Competency (PTC) goes up by 1 standard deviation, Critical Delay Factor Evaluation (CDFS) goes up by 0.243standard deviations. As shown in "Table 8", the t-value and p-value of Project Characteristics (PC) in predicting the Project Success Criteria (PSC) were 5.661and 0.000 respectively. This means that the probability of getting a t-value as large as 5.661in absolute value is 0.000. That is, the regression weight for Project Characteristics (PC) in the prediction of Project Success Criteria (PSC) is significantly different from zero at the 0.001 level (two-tailed). Thus, H5 was supported. The path coefficient was 0.270, indicating a positive relationship.

5.3.2. Moderation Effects of Project Characteristics (PC)

The moderation effects of Project Characteristics (PC) on the effects of Project Manager's Competency (PMC) and Project Team's member Competency (PTC) as independent variables on the Project Success Criteria (PSC) as dependent variable (DV) were examined. The relative hypotheses are H3 and H4 respectively.

If there the moderating effect is significantly present, Aiken and West (1991) technique proposed to produce plots for each interaction was applied to demonstrate the influence of the moderator in the relationship between the predictor and outcome variable. According to Aiken and West's recommendations, the four cell means required to be created for graphing the interaction among the variables. One dichotomizes both independent variable (low and

DOI: 10.37200/IJPR/V24I3/PR200979
Received: 20 Jan 2020 | Revised: 06 Feb 2020 | Accepted: 12 Feb 2020

high) and moderating variable (low and high), and crosses these levels to obtain four cell means. “Low” is defined, as one standard deviation below the mean, and “high” is one standard deviation above the mean(Aiken & West, 1991).

A structural model with interaction terms to examine the moderation effects of Project Characteristics (PC) are portrayed in "Fig.3".

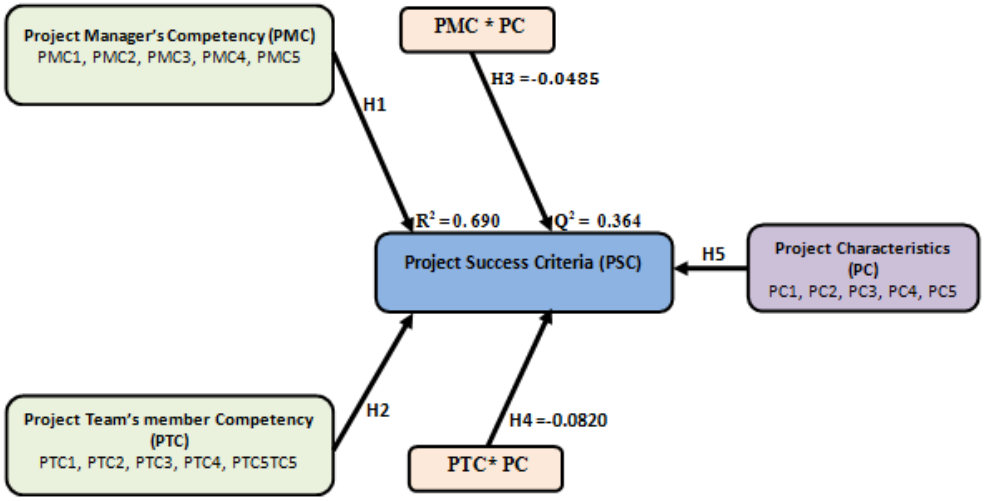

Fig. 3: PLS Analysis of the Structural Model for Moderation Effects of Project Characteristics (PC)

The values of R^2 for Project Success Criteria (PSC) was 0.690, which is describing an almost substantial level as recommended by (Hair et al., 2011; Henseler et al., 2009). The values of Q^2 for Project Success Criteria (PSC) was 0.364, far greater than zero, which refers to predictive relevance of the model as suggested by Sarstedt et al. (2014).In sum, the model exhibits acceptable fit and high predictive relevance.

The moderation effects of Project Characteristics (PC) on the Project Manager’s Competency (PMC) and Project Team’s member Competency (PTC) as independent variables on Project Success Criteria (PSC)as dependent variable (DV) were examined as presented in "Table 9". Further, the path coefficient was used to evaluate the contribution of each interaction term on the DV.

Table 9: Moderation Effects of Project Characteristics (PC)

Path Shape	Path Coefficient	Standard Error	T-value	P-value	Hypothesis Result
(PMC*PC) →PSC	-0.0485*	0.0247	1.9610	0.010	H4 Supported
(PTC*PC) →PSC	-0.0820*	0.0281	2.3267	0.020	H5 Supported

*p< 0.05

As shown in "Table 9", the effect of Project Characteristics (PC) interaction with Project Manager’s Competency (PMC) on Project Characteristics (PC) was statistically significant at 0.01 level; Coefficient Path = -0.0485, T-value = 1.9610, p-value = 0.010. This result indicated that Project Characteristics (PC) moderated the relationship between Project Manager’s Competency (PMC) on Project Characteristics (PC). Similarly, As presented in "Table 9", the effect of Project Characteristics (PC) interaction with Project Team’s member Competency (PTC) on Project

DOI: 10.37200/IJPR/V24I3/PR200979
Received: 20 Jan 2020 | Revised: 06 Feb 2020 | Accepted: 12 Feb 2020

Success Criteria (PSC) was statistically significant at 0.020 level; Coefficient Path = -0.0820, T-value = 2.3267, p-value = 0.010. This result indicated that Project Characteristics (PC) moderated the relationship between Project Team's member Competency (PTC) and Project Success Criteria (PSC).

Hypothesis 4 anticipated that Project Characteristics (PC) would moderate the relationship between Project Manager's Competency (PMC) factor and Project Success Criteria (PSC), such that the relationship between them would be stronger (i.e., positively significant) if there was a significant interaction effect between Project Manager's Competency (PMC) and Project Characteristics (PC) moderated the relationship between Project Manager's Competency (PMC) on Project Characteristics (PC). Therefore, Hypothesis 4 was supported, as depicted in "Fig. 4".

Hypothesis 5 proposed that Project Characteristics (PC)would moderate the relationship between Project Team's member Competency (PTC) factor and Project Success Criteria (PSC), such that the relationship between them would be stronger (i.e., positively significant) if there was a significant interaction effect between Project Team's member Competency (PTC)and Project Characteristics (PC). Therefore, Hypothesis 5 was supported, as depicted in "Fig. 4".

As presented in Fig. 4, the two lines showed a positive relationship between Project Manager's Competency (PMC) and Project Success Criteria (PSC). Since the portrayed two lines were not parallel this implicit the existing effect of moderation interaction. However, the relationship was greater for the high level of Project Characteristics (PC) compare to the low level. Henceforth, it could be established that the Project Characteristics (PC) moderates the relationship between Project between Project Manager's Competency (PMC) and Project Characteristics (PC). It means that with an increase in the level of Project Characteristics (PC) as moderator, the effect of Project Manager's Competency (PMC) as IV on Project Success Criteria (PSC) as DV will increase.

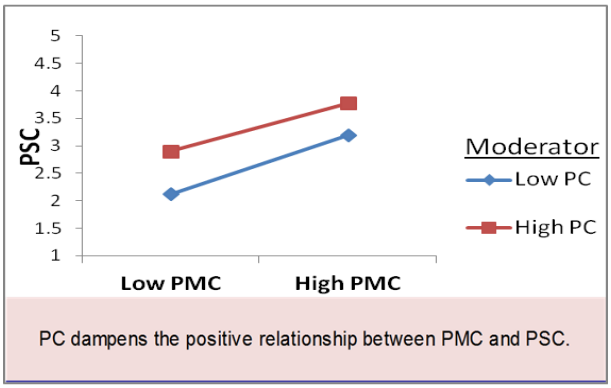

Fig. 4: The interaction between Project Manager's Competency (PMC) and Project Characteristics (PC)

Likewise, as displayed in Fig. 5, the two lines indicated a positive relationship between Project Team's member Competency (PTC) and Project Success Criteria (PSC). The two lines were not parallel which indicated the prevailing effect of moderation. However, the relationship was greater for the high level of Project Characteristics (PC) compare to the low level. Hence, it could be concluded that the Project Characteristics (PC) positively moderates the relationship between Project Team's member Competency (PTC) and Project Success Criteria (PSC).

DOI: 10.37200/IJPR/V24I3/PR200979
Received: 20 Jan 2020 | Revised: 06 Feb 2020 | Accepted: 12 Feb 2020

It means that with an increase in the level of Project Benchmark Characteristics (PC) as moderator, the effect of Project Team's member Competency (PTC) as IV on Project Success Criteria (PSC) as DV will increase.

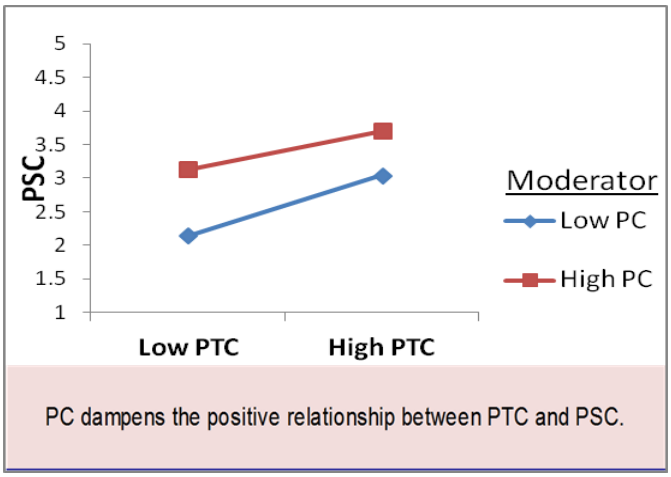

Fig. 5: The interaction between Project Team's member Competency (PTC) and Project Characteristics (PC)

VI. Discussion and Conclusion

The main objective of this research was to investigate the relationship between Project Manager's Competency (PMC) and Project Team's member Competency (PTC), and Project Success Criteria (PSC), and to examine whether Project Characteristic (PC) have effects on the relationships between Human factors (Project Manager's Competency and Project Team's member Competency factors) and Project Success Criteria.

First, in line with Hypothesis 1, results affirmed a significant positive relationship between Project Manager's Competency (PMC) and Project Success Criteria (PSC), proposing that project manager competencies are important in the construction industries to achieve success of construction project. This result is in line with several researches findings who confirmed a significant and positive relationship between Project Manager's Competency factor and Project Success (Lehtiranta et al., 2012; Gudienė et al., 2014; Ihuah et al., 2014 and Alzahrani and Emsley, 2013). Furthermore, the project manager's coordinating capabilities and good relationships with all concerned parties will facilitate and narrow any raised gap between them. Additionally, the project manager's clear decisions taken with a high degree of confidence are very important factors in convincing project stakeholders whenever necessary. However, any construction organization that has recruited project managers with adequate capabilities will theoretically record significant improvement in their construction actives toward success.

Furthermore, the authors hypothesized that Project Team's member Competency factor would be positively related to Project Success Criteria (Hypothesis 2). As expected, the finding avowed a positive relationship between Project Team's member Competency and construction Project Success Criteria. This shows that Project Team's member Competencies factors will have a high probability of success occurrence in construction activities, theoretically, because all of the examined studies revealed a similar positive relationship between these variables (Gudienė et al., 2014; Meng, 2012; Cserháti and Szabó, 2014; Zavadskas et al., 2014).

DOI: 10.37200/IJPR/V24I3/PR200979
Received: 20 Jan 2020 | Revised: 06 Feb 2020 | Accepted: 12 Feb 2020

Hypothesis 3 revealed a significant and positive relationship between Project Characteristic factor and Project Success Criteria, which is in line with (Shehu et al., 2014; Yang et al., 2015; Gudienė et al., 2014).Furthermore, for Hypothesis 4, the authors predicted whetherProject Characteristic would moderate the relationship between Project Manager's Competency factor and Project Success Criteria. Findings from this study discovered a significant positive relationship between the variables, which shows thatProject Characteristic dampens the relationship between variables. In the same vein, Hypothesis 5 anticipated if Project Characteristic would moderate the relationship among Project Team's member Competency factor and Project Success Criteria. The study findings depicted that Project Characteristics moderate (negative) the relationship.

In general, the findings of this study portrayed an important theoretical and practical significances. First, this research has exposed a theoretical inference ground by providing extra empirical proof in the domain of construction industry. Several researchers stated that projects members including the project team and project mangers should theoretically have key roles and significant influence toward project success completion in term of the identified criteria(Yang et al., 2015; Gudienė et al., 2014). Instead of focusing only on the relationships among factors, this research has extended the theory by investigating the influence of moderating factor on this relationship between factors.

Therefore, this research has also examined the moderating role of project characteristics in the relationships among Project Manager's Competency and Project Team's member Competency with Project Success Criteria. Several previous empirical conducted researches on the subject of the relationships between Project Manager's and Team's member Competencies factors with Project Success factors in general depicted different inconsistent findings (e.g., Ihuah et al.,2014;Cserháti and Szabó,2014). Thus, this firmly demonstrates a theoretical gap from the anticipation literature. The present study has answered this gap by integrating Project Characteristics as the moderating variable to recover the uneasiness of the influence of competencies factors on Project Success Criteria.

Finally, this study results revealed that Project Characteristics were a significant moderator of competencies effects within the construction project organization. The findings recommended that proper competencies of project participants whether team member or project manager will resulted in increasing success occurrence in construction projects. For example, project managers competencies such as technical capabilities supported by relevant experience and proper decisions can reduce the impact of complex and unique activities by deploying proper qualified manpower and equipment resources in every stage of construction. Additionally, it is suggested that each team member should have the talent to take an active part in the monitoring and troubleshooting of the project during the course of the project execution, so as to increase the quality of the project activities and deliverables.

Although the present study has shown some additional understanding into the relationship between human factors and project characteristics on project success criteria, it is not without limitations. First, because this study implemented a cross-sectional design, suggested induction can't be made to the investigation population. Thus, a longitudinal design can be utilised in the future studies to attain changes over a period of time. Second, this study is limited to the construction industry within the UAE domain and hence future study can also increase or widen the study domain either by targeting other countries or other fields of projects. Moreover, and for a better result, future

DOI: 10.37200/IJPR/V24I3/PR200979
Received: 20 Jan 2020 | Revised: 06 Feb 2020 | Accepted: 12 Feb 2020

research should try to increase the study sample from the 323 being used in this study for more reliable data and a superior result.

In any case of the highlighted limitations, this study was able to depict the moderating influence of project characteristics on the relationship between Project Manager's Competency and Project Team's member Competency as independent factors and Project Success Criteria as a dependent. Findings of this study have disclosed the importance of Project Manager's Competency and Project Team's member Competency factors in ameliorating the construction industry performance toward successful execution within success criteria..

REFERENCES

[1] Ahadzie, D.K., Proverbs, D.G. and Olomolaiye, P.O., 2008. Critical success criteria for mass house building projects in developing countries. *International Journal of Project Management*, 26(6), pp.675-687.

[2] Aiken, L.S., West, S.G. and Reno, R.R., 1991. *Multiple regression: Testing and interpreting interactions*. Sage.

[3] Ali, M. and Beheiry, S., 2016. The applicability of just-in-time in United Arab Emirates construction projects. *Journal of Emerging Trends in Engineering and Applied Sciences*, *7*(2), pp.120-128.

[4] Alias, Z., Zawawi, E.M.A., Yusof, K. and Aris, N.M., 2014. Determining critical success factors of project management practice: A conceptual framework. *Procedia-Social and Behavioral Sciences*, 153, pp.61-69.

[5] Alzahrani, J.I. and Emsley, M.W., 2013. The impact of contractors' attributes on construction project success: A post construction evaluation. *International Journal of Project Management*, 31(2), pp.313-322.

[6] Alzara, M., Kashiwagi, J., Kashiwagi, D. and Al-Tassan, A., 2016. Using PIPS to minimize causes of delay in Saudi Arabian construction projects: university case study. *Procedia Engineering*, 145, pp.932-939.

[7] Assaf, S.A. and Al-Hejji, S., 2006. Causes of delay in large construction projects. *International journal of project management*, *24*(4), pp.349-357.

[8] Aziz, R.F. and Abdel-Hakam, A.A., 2016. Exploring delay causes of road construction projects in Egypt. *Alexandria Engineering Journal*, 55(2), pp.1515-1539.

[9] Bagozzi, R.P. and Yi, Y., 1988. On the evaluation of structural equation models. *Journal of the academy of marketing science*, 16(1), pp.74-94.

[10] Bakar, A.H.A., Tufail, M.A., Tufail, M.N.Y.M.A. and Virgiyanti, W., 2011. Implementation of strategic management practices in the Malaysian construction industry. *Pakistan Journal of Commerce and Social Sciences (PJCSS)*, 5(1), pp.140-154.

[11] Belassi, W. and Tukel, O.I., 1996. A new framework for determining critical success/failure factors in projects. *International journal of project management*, 14(3), pp.141-151.

[12] Chan, A.P., Scott, D. and Chan, A.P., 2004. Factors affecting the success of a construction project. *Journal of construction engineering and management*, 130(1), pp.153-155.

[13] Chen, W.T. and Chen, T.T., 2007. Critical success factors for construction partnering in Taiwan. *International journal of project management*, 25(5), pp.475-484.

[14] Chen, W. T., Chen, T. T., Sheng Lu, C., & Liu, S. S. (2012) Analysing relationships among success variables of construction partnering using structural equation modeling: a case study of Taiwan's construction industry. *Journal of Civil Engineering and Management*, 18(6), 783-794.

[15] Chin, W.W. and Dibbern, J., 2010. Handbook of partial least squares. How to write up and report PLS analyses. New York: Springer, pp.655-690.

[16] Cserháti, G. and Szabó, L., 2014. The relationship between success criteria and success factors in organisational event projects. *International Journal of Project Management*, 32(4), pp.613-624.

[17] Doloi, H., Iyer, K.C. and Sawhney, A., 2012. Structural equation model for assessing impacts of contractor's performance on project success. *International Journal of Project Management*, 29(6), pp.687-695.

[18] Duarte, P.O., Alves, H.B. and Raposo, M.B., 2010. Understanding university image: a structural equation model approach. *International Review on Public and Nonprofit Marketing*, *7*(1), pp.21-36.

[19] Elawi, G.S.A., Algahtany, M. and Kashiwagi, D., 2016. Owners' perspective of factors contributing to project delay: case studies of road and bridge projects in Saudi Arabia. *Procedia Engineering*, 145, pp.1402-1409.

DOI: 10.37200/IJPR/V24I3/PR200979
Received: 20 Jan 2020 | Revised: 06 Feb 2020 | Accepted: 12 Feb 2020

[20] Esposito Vinzi, V., Chin, W.W., Henseler, J. and Wang, H., 2010. *Handbook of partial least squares: Concepts, methods and applications*. Heidelberg, Dordrecht, London, New York: Springer.

[21] Famakin, I. O., Aje, I. O., & Ogunsemi, D. R. (2012). Assessment of success factors for joint venture construction projects in Nigeria. *Journal of Financial Management of Property and Construction*, 17(2), 153-165.

[22] Fornell, C. and Larcker, D.F., 1981. Evaluating structural equation models with unobservable variables and measurement error. *Journal of marketing research*, *18*(1), pp.39-50.

[23] Fornell, C. and Bookstein, F.L., 1982. Two structural equation models: LISREL and PLS applied to consumer exit-voice theory. *Journal of Marketing research*, *19*(4), pp.440-452.

[24] Fortune, J. and White, D., 2006. Framing of project critical success factors by a systems model. *International journal of project management*, 24(1), pp.53-65.

[25] Gudienė, N., Banaitis, A. and Banaitienė, N., 2013. Evaluation of critical success factors for construction projects–an empirical study in Lithuania. *International journal of strategic property management*, 17(1), pp.21-31.

[26] Gudienė, N., Banaitis, A., Podvezko, V. and Banaitienė, N., 2014. Identification and evaluation of the critical success factors for construction projects in Lithuania: AHP approach. *Journal of Civil Engineering and Management*, 20(3), pp.350-359.

[27] Hair Jr, J.F., Hult, G.T.M., Ringle, C. and Sarstedt, M., 2016. A primer on partial least squares structural equation modeling (PLS-SEM). Sage Publications.

[28] Hair, J.F., Ringle, C.M. and Sarstedt, M., 2011. PLS-SEM: Indeed a silver bullet. *Journal of Marketing theory and Practice*, 19(2), pp.139-152.

[29] Henseler, J., Ringle, C.M. and Sinkovics, R.R., 2009. The use of partial least squares path modeling in international marketing. In *New challenges to international marketing* (pp. 277-319). Emerald Group Publishing Limited.

[30] Ho, R., 2006. Handbook of univariate and multivariate data analysis and interpretation with SPSS. Chapman and Hall/CRC.

[31] Hwang, B.G., Zhao, X. and Ng, S.Y., 2013. Identifying the critical factors affecting schedule performance of public housing projects. *Habitat International*, *38*, pp.214-221.

[32] Ihuah, P.W., Kakulu, I.I. and Eaton, D., 2014. A review of Critical Project Management Success Factors (CPMSF) for sustainable social housing in Nigeria. International *Journal of Sustainable* Built Environment, 3(1), pp.62-71.

[33] Iacobucci, D. (2010) Structural equations modeling: Fit indices, sample size, and advanced topics. *Journal of Consumer Psychology*, 20(1), 90-98.

[34] Iyer, K.C. and Jha, K.N., 2006. Critical factors affecting schedule performance: Evidence from Indian construction projects. *Journal of construction engineering and management*, 132(8), pp.871-881.

[35] Jha, K.N. and Iyer, K.C., 2007. Commitment, coordination, competence and the iron triangle. *International Journal of Project Management*, 25(5), pp.527-540.

[36] Lehtiranta, L., Kärnä, S., Junnonen, J. M., & Julin, P. (2012) The role of multi-firm satisfaction in construction project success. *Construction Management and Economics*, 30(6), 463-475.

[37] Locatelli, G., Littau, P., Brookes, N. J., & Mancini, M. (2014) Project characteristics enabling the success of megaprojects: An empirical investigation in the energy sector. *Procedia-Social and Behavioral Sciences*, 119, 625-634

[38] Long, N.D., Ogunlana, S., Quang, T. and Lam, K.C., 2004. Large construction projects in developing countries: a case study from Vietnam. *International Journal of project management*, *22*(7), pp.553-561.

[39] Meng, X. (2012) The effect of relationship management on project performance in construction. International journal of project management, 30(2), 188-198.

[40] Mukhtar, M.M., Amirudin, R.B., Sofield, T. and Mohamad, I.B., 2017. Critical success factors for public housing projects in developing countries: a case study of Nigeria. *Environment, Development and Sustainability*, 19(5), pp.2039-2067.

[41] Müller, R. and 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), pp.757-775.

[42] Müller, R. and Turner, R., 2007. The influence of project managers on project success criteria and project success by type of project. *European management journal*, 25(4), pp.298-309.

[43] Park, S.H., 2009. Whole life performance assessment: critical success factors. *Journal of Construction Engineering and Management*, 135(11), pp.1146-1161.

DOI: 10.37200/IJPR/V24I3/PR200979
Received: 20 Jan 2020 | Revised: 06 Feb 2020 | Accepted: 12 Feb 2020

[44] Pinto, J.K. and Slevin, D.P., 1987. Critical factors in successful project implementation. IEEE transactions on engineering management, (1), pp.22-27.

[45] Rahman, I.A., Memon, A.H., Aziz, A.A.A. and Abdullah, N.H., 2013. Modeling causes of cost overrun in large construction projects with partial least square-SEM approach: contractor's perspective. *Research Journal of Applied Sciences, Engineering and Technology*, *5*(06), pp.1963-1972.

[46] Ringle, C.M., Wende, S. and Will, A., 2005. SmartPLS 2.0 (beta). University of Hamburg, Hamburg, Germany. *Computer software downloaded.< http://www. smartpls. de*.

[47] Sarstedt, M., Ringle, C. M., Smith, D., Reams, R., & Hair Jr, J. F. (2014) Partial least squares structural equation modeling (PLS-SEM): A useful tool for family business researchers. *Journal of Family Business Strategy*, 5(1), 105-115.

[48] Shehu, Z., Endut, I. R., Akintoye, A., & Holt, G. D. (2014) Cost overrun in the Malaysian construction industry projects: A deeper insight. *International Journal of Project Management*, 32(8), 1471-1480.

[49] Tabish, S.Z.S. and Jha, K.N., 2012. Success traits for a construction project. *Journal of Construction Engineering and Management*, 138(10), pp.1131-1138.

[50] Tan, D. J-Z. and Ghazali, M.F.E., 2011. Critical Success Factors for Malaysian Contractors in International Construction Projects Using Analytical Hierarchy Process". *EPPM*. Vol. 20-21, Pp 127-138.

[51] Thi, C.H. and Swierczek, F.W., 2010. Critical success factors in project management: implication from Vietnam. *Asia Pacific Business Review*, 16(4), pp.567-589.

[52] Toor, S.U.R. and Ogunlana, S.O., 2009. Construction professionals' perception of critical success factors for large-scale construction projects. *Construction Innovation*, 9(2), pp.149-167.

[53] Tumi, S.A.H., Omran, A. and Pakir, A.H.K., 2009, November. Causes of delay in construction industry in Libya. In *The International Conference on Economics and Administration*(pp. 265-272).

[54] Verburg, R. M., Bosch-Sijtsema, P., & Vartiainen, M. (2013) Getting it done: Critical success factors for project managers in virtual work settings. *International journal of project management*, 31(1), 68-79.

[55] Windapo, A. O., & Cattell, K. (2013) The South African construction industry: Perceptions of key challenges facing its performance, development and growth. *Journal of Construction in Developing Countries*, 18(2), 65.

[56] Wibowo, A., & Wilhelm Alfen, H. (2014) Identifying macro-environmental critical success factors and key areas for improvement to promote public-private partnerships in infrastructure: Indonesia's perspective. Engineering, *Construction and Architectural Management*, 21(4), 383-402.

[57] Yang, L. R., Chen, J. H., & Wang, X. L. (2015) Assessing the effect of requirement definition and management on performance outcomes: Role of interpersonal conflict, product advantage and project type. *International Journal of Project Management*, 33(1), 67-80.

[58] Yang, L. R., Huang, C. F., & Wu, K. S. (2011) The association among project manager's leadership style, teamwork and project success. *International journal of project management*, 29(3), 258-267.

[59] Yong, Y.C. and Mustaffa, N.E., 2013. Critical success factors for Malaysian construction projects: an empirical assessment. *Construction Management and Economics*, 31(9), pp.959-978.

[60] Yu, J.H. and Kwon, H.R., 2011. Critical success factors for urban regeneration projects in Korea. *International Journal of Project Management*, 29(7), pp.889-899.

[61] Yusuwan, N.M. and Adnan, H., 2013. Assessing extension of time application in Malaysian construction industry: Views from professionals. *Procedia-Social and Behavioral Sciences*, *105*, pp.54-63.

[62] Zavadskas, E., Vilutiene, T., Turskis, Z. and Saparauskas, J. (2014) Multi-criteria analysis of Projects' performance in construction. *Journal of archives of civil and mechanical engineering*. 14, 114-121.

[63] Zou, W., Kumaraswamy, M., Chung, J., & Wong, J. (2014) Identifying the critical success factors for relationship management in PPP projects. *International Journal of Project Management*, 32(2), 265-274.

DOI: 10.37200/IJPR/V24I3/PR200979
Received: 20 Jan 2020 | Revised: 06 Feb 2020 | Accepted: 12 Feb 2020