

Research Article

Client Requirements Management and Design-Build Delivery: The Moderating Role of Transactional Leadership

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Received: 15/Nov/2024; Accepted: 16/Dec/2024; Published: 31/Jan/2025

Abstract— An examination was conducted on the Design-Build project delivery in FCT Nigeria with a view of finding out if effective Transactional leadership would moderate the relationship between client's requirement information elicitation and the Design-Build cost delivery. A sample of 400 participants were drawn from a completed Design-Build project between (2015 and 2023) Presidency Publicity Unit (PPC), 2023. Relevant data were analysed based on study constructs. Findings from descriptive analysis reveal moderate differences on DB cost delivery (3.37), findings on correlation between elicitation and cost, the result shows that there is negligible negative correlation between the elicitation and cost variables, $r = -.010$, $n = 300$, $p = 0.867$ making it statistically insignificant $p < .05$ (Pallant, 2011). The result also shows that there is weak insignificant, negative correlation between the analysis and cost variables, $r = -.087$, $n = 300$, $p = 0.134$ making it a statistically insignificant at $p < .05$ (Pallant, 2011). Finding on structural model reveal a moderated value of ($p < 0.05$) between information elicitation and DB cost delivery. The theoretical implication is that information elicitation influences DB cost delivery while the practical implication reveal that the influence is contingent on the moderator. The study therefore it recommends the use of moderation particular to DB variant in use standard form of building contract in Nigerian (SFBCN).

Keywords— Client requirements; client requirement management (CRM), Elicitation, Design Build delivery, Transactional Leadership.

1. Introduction

Design-Build is an alternative method which has innovative approach to address the problem created by the traditional method [1]. However, it also has its own problem. [2] pointed these problems out as (1) difficulty in assessing tenders (2) difficulty in managing changes in clients request for proposal (3) lack of competency in design build (4) mixing DB process with traditional method. Different researchers sought to address these problems: The most recent include [2] who developed a computerized framework to capture client's requirements (REF). This effort is undermine by the ambiguities in the client requirement information being in the client requirement information being inputted in the computer. Therefore, the management of client requirement (CRM) continued to pose a challenge to Design-Build delivery [4]. Recent researchers, [12] sought to address thi9s problem with intervening variable. The study pointed out that if the intervening variable is made to interact with the antecedent variable (independent variable). It will create a catalyst for moderating the relationship between CRM and DB delivery. One of the intervening variables identified in this study is Transactional leadership. Existing literature however has remained silent in utilizing Transactional

leadership to moderate client requirement in order to offer incentives for successful delivery of Design-Build projects. The research question therefore is "what is the Moderating effect size of the transactional leadership on the relationship between CRM and DB delivery".

Keywords: Design-Build, Design –Build Delivery, Request for proposal, client requirement management and Transactional leadership.

2. Related Work

Design-Build

Design-Build Method (DB) is a procurement approach in which the clients prepare client requirements (Request for proposal (RFP), [10] and use it to invite contractors to tender for the project. These contractors are responsible for both design and construction [1], [4]. This procurement system allows early introduction of contractors and suppliers, and helps integrate their knowledge and expertise during the design stage [8]. Design-Build is reputed for cost certainty and time certainty, Quality assurance, scope compliance and owner satisfaction. It has indeed been ranked 76% excellent over all other alternative methods mentioned above by a global audience of project managers (Financial Manag

[6]ement Institute, [14].The interest in the application of Design-Build techniques as an alternative procurement method in construction projects has increased since the last decade as a result of rising demand by project parties for effective procurement strategy [9]. The drivers for Design-Build adoption in construction industry include maximising the use of resources between project team members, reduce work variations, high success rate, improve tendering process, share expertise with project team, dispute prevention during the construction stage, greater allocation of risks to contractors, better project pricing, rate a win-win situation between project stakeholders, and early contractors involvement in the design stage [6].

Design- Build delivery

Projects involve defined objectives that must be achieved and numerous resources must be deployed efficiently in order to achieve successful delivery. [13] emphasise the need for project participants involved in construction delivery to develop and use tools for performance measurement. [15] identify 250 parameters for measuring project delivery. [12] identifies 70 potential factors for measuring project delivery. [7] classified the tools of measuring delivery into subjective and objective measures. The objective measures be captured as cost, time, and quality while subjective measures be captured as owners satisfaction and scope. [9] observed that it would be difficult to monitor and anticipate successful project delivery if there is no determinant of success. [5] believe that stakeholders have different interests and therefore their perception of successful delivery varies.

Design Build Cost Challenges

Paula, [5] define cost as expenses incurred by the contractor for labour, materials, requirement, profit and overheads. Cost of construction projects is the total cost of all the construction portions of a project based on direct and indirect costs, [11] describes cost as the sum established by the owner as available for construction and is stipulated as the highest acceptable bid price. The cost of the project issued as a measure of successful delivery, cost management goes with time management. [14] reports that change orders affect cost; other include inaccurate reports, poor budget forecasting, inefficient processes and systems affect project costs of the factors are highlighted in the following paragraphs.

Effects of Weather on Design-Build cost

Weather is the most uncontrollable factor amongst the other variables considered. Temperature and humidity affect productivity of workers. If the temperature and humidity are high, workers feel lethargic and lose physical coordination [7]

Effect of Raw Materials on Design-Build Cost

[4] noted that the reason for shortage of materials could be the defective supply of materials occasioned by general shortages in the industry, poor communication amidst sites and head office, poor purchasing planning and materials coordination. Nigeria still imports cement when her cement production potentials surpass any other African country except Egypt and that the 100 % raw materials required for cement production, is readily available in Nigeria [6]. In

another development, [12] observed that 90% of the aggregate components for production and delivery of electricity in the country still depends on other developed countries because of incessant supply of electricity.

Effect of supplier Manipulation on Design-Build Cost

The major reasons for this factor as observed by [14] are monopoly control of the market by some suppliers, work stoppages in factories, lack of industrialized materials, fluctuating demands forcing suppliers to wait for accumulation of orders and difficulty in importing raw materials from other countries.

Effect of Government Policy on Design Build Cost

[21] Revealed that Government deregulation policies aimed at liberalizing the economy since 2014 are responsible for the instability in prices. It is therefore not surprising that fluctuation claims during these periods contribute significantly to additional cost.

Effect of Contractor cartel on Design Cost

[18], the major projects like heavy engineering, super highways and general infrastructure can only be undertaken in Nigeria by a few contractors. These contractors know themselves and therefore an indirect cartel is formed. The contractors on tendering are in a vantage position to decide amongst themselves who gets which contract and at what price. What appears on tendering to be the lowest tender may be over 20% - 30% above the actual value of the job.

Effect of Incorrect Planning on Design Build Cost

Incorrect planning is one of the most important factors that affect cost of construction. Contractors must be aware of all resources that he might need for any project. The contractors, also, should utilize all resources in an efficient manner. Proper scheduling is the key to utilizing project resources, if not, the project cost will increase.

Design- Build Time

[17] reported that time is regarded as the period agreed within which the project must be completed, however the problem of the firms inefficiency in interfacing and communicating with clients result in delays. [21] observed that change order orders by clients and firms ineffectiveness in managing change in requirements affect time allocated for the project. Trustworthiness of a contractor, frequent site meetings and contractors, ability to review previous programme achieved or where programme is lagging to rectify it improves time performance on a project. The time allocated to a project is used as a measure of success in project delivery [20].Hartmann *et al.*, [7] asserted that various factors have been identified by different researchers from the time aspect in different construction industries. Lack of materials, incomplete drawing, incompetent supervisors, lack of tool and equipment, absenteeism, poor communication, poor site layout, inspection delay and rework were found to be the most significant problems affecting project duration (time).

Design- Build Quality

A study by [19] state that poor quality in Nigerian construction industry is traced to poor technical performance of contractors [4] report that use of substandard materials is one of the most significant factors affecting quality of end product and this occurs as a result of fraudulent practices among contractors. [17] Note that the problems of reworks have a devastating effect on cost, time and quality of the project. [20], [8] further noted that the impact of reworks on completed works, waiting for materials, are identified as key factors affecting quality and contractors. Compliance with Quality specified is a measure of success in the construction industry.

Design- Build Owner/ client Satisfaction

Inflow of unskilled labour contribute to low quality. [16] Identified lack of proper materials handling procured, problem of rework and poor supervision as factors affecting quality and owner satisfaction. [3] Agreed that slowness of contractors technical performance, poor construction methods are responsible for owners dissatisfaction and results in awarding contracts to foreign firms. [1] Reported that problem of limited skills in labour and resources in developing countries affect satisfactory performance of local contractors. It added that they are the main reasons that construction projects are awarded to foreign contractors. [5] further reported that problems associated with local contractors include inadequate and obsolete equipment's, inefficient handling of construction materials, imbalances in organizational structure, unfair competition lack of funds, poor planning, uncertainties in construction and lack of human resources development are symptomatic issues that account for clients dissatisfaction with local contractors in developing countries. Clients' satisfaction is a measure of success in the construction industry [2]; thus understanding these expectations is vital [2].

Design- Build Clients Requirements (Request for proposal, RFP)

[12] defines clients' requirements (RFP) as engineering specifications which are designed to produce products. [21] describe clients' requirements as objectives, needs, wish and expectations of the clients. [17] maintains that clients requirements (RFP) are the wishes, perspectives and expectations of the clients body (clientele), describing the facility that will satisfy the clients objectives (or business needs). [3] describe clients' requirements (RFP) as measurable statements of clients' needs which are transformed to drawings and finished products. [18] described client's requirements (RFP) as statement of needs which are transformed into an architectural design and subsequently into a finished facility. RIBA plan of work [1] defines clients' requirements (RFP) as documents that defines the project outcomes and sets out what the client is seeking to achieve. It added that it is used to define a business case which examines any viable options that meet the client's requirements. RIBA plan of work [1] further maintains that it, means the information which is required from the client in order for the contractor to provide the services. It maintains that is the statement include in the request for proposal (RFP) in a DB

project, detailing the technical, financial and managerial requirements of a client which are to be met by a successful bidder and which are to be addressed in a bid. Many authors have conceptualized requirements differently.

Clients Requirement Management (RFP Management)

[2] indicates that requirement management is concerned with the real world problems to be addressed systematically and is focused on the elicitation, analysis, specification and validation of requirements. They contend that requirement management is a generic activity of requirement engineering (RE). [9] identifies Requirement Management (RM) as the process of creating, disseminating, maintaining and verifying requirements. The office of government commerce [21] recognizes the process of elicitation, documentation, organization and tracking requirement information and communicating information as requirement management Cross [5] State that requirement management is the process of identifying stakeholders and their needs and documenting them in a form that is amenable to analysis, communication and subsequent implementation. From these definitions, the commonalities in them are identification, documentation, storage, communication, dissemination, changes; change management including updating the requirements information. In order to facilitate effective requirement information management sufficient information about each requirement should be documented. [6] suggested four key attributes required of requirement management. These they termed (1) requirement number; (2) Priority; (3) Rationale and (4) type of requirement. Requirement number is for identifying the requirement; requirement priority specifies the decision on its importance in relation to the others; Rationale explains the purpose while requirement type is identified with the stakeholder. [1] explain the importance of the requirement attributes as traceability and change control purposes. Researchers [3] sought to address the problem with intervening variable one identified is Transactional Leaders.

Clients Requirement management (System Theory)

According to [9] Clients requirements management are in a system form, comprising technical, managerial and financial issues relative to the project. System theory [16] is an interdisciplinary study of system which is cohesive group of related parts. Every system [13] is influenced by its environment and expresses synergy or emergent behavior. The theory [3] predicts that changing one part affects the other parts. This implies that the factors which affect clients' requirements management [2] have a negative ripple effect on the successful Delivery of DB projects. [12] and [15] have defined clients' requirements as objectives, needs, wishes and expectations of the client. They went on to state that these requirements are in a system form within which business strategy, building components, operations and maintenance is integrated. The problems their inefficiencies pose impact DB delivery negatively.

3. Experimental Method/Procedure/Design

Population of the Study

Research setting and data

This study is conducted in FCT, Abuja, being a nation capital many new project are ongoing there and for the study is ready available.

Sampling and data collection

The study purposively drew sample of 400 respondents from 50 completed Design-Build projects between 2015 and 2023 (Presidency Media Publicity Unit, 2023). Data was collected using a structured questionnaire, after subjecting it to validity reliability test.

Measures

The data items were measured using descriptive statistics (Ramli et al., 2017). The scale used is 5 likert were the items of dependent variable are 6 taken from Hughes et al.,(2015). For the independent variables , 11 items are taken from Jallow et al., (2014). CRM elicitation was measured using MS statistics, CRM analysis were measured using MS statistics on 5 likert scale Moderation (CR) for the item was measured using regression and hierarchical regression.

Analysis

The demographic information

For each variables of the study, in order to test the effect on independent variable on the dependent variable, the demographic information were entered into the warp PLS software in step 1.

Regression

The effect terms (independent variables) were entered in step 2.

Hierarchical Regression (Moderation)

In order to test the moderating effect of contingent reward on the relation between independent & dependent variable, a three step hierarchical regression was conducted.

Step 1: Control variable

Step 2: Predictor variable

Step 3: Interaction term

Step 4: Centered values

4. Results and Discussion

Table 1: Demographic Information of the Respondents

Demographic information of the respondents was carried out using frequency and percentage.

S/N	Attribute	Frequency	Percentage
	Organisation you work in		
	Clients Organization	84	28.0
	Consultants Firm	84	28.0
	Contracting Organization	132	44.0
	Total	300	100.0
	Positioning your organization		
	Director General or Head of Unit	66	22.0
	Managing Director of Company Head of Unit	111	37.0
	Principal Partners of the firm Head of Unit	96	32.0
	OTHERS	27	9.0
	Total	300	100.0
	Your professional		

background		
Architect	66	22.0
Quantity Surveying	108	36.0
Structural Engineer	36	12.0
Building Engineer	21	7.0
OTHERS	69	23.0
Total	300	100.0
Working Experience		
Less than 5 Years	45	15.0
6-10 Years	30	10.0
11-15 Years	78	26.0
16-20 Years	96	32.0
Above 20 Years	51	17.0
Total	300	100.0
Organization Existed		
Less than 5 Years	24	8.0
6-10 Years	54	18.0
11-15 Years	51	17.0
16-20 Years	141	47.0
ABOVE 20 YEARS	30	10.0
Total	300	100.0
Type of project does your organization carry out		
Building construction	153	51.0
Civil Engineering work	81	27.0
Mechanical/Electrical Services	45	15.0
OTHERS	21	7.0
Total	300	100.0
Category of Design-Build you use		
Pure Design-Build (Design team and contracting team are one company)	87	29.0
Develop and Construct (Clients make design input)	75	25.0
Competitive Design-Build (Contractor is selected through competition)	117	39.0
OTHERS (Turnkey; package deal, Novation) contract is formed through contract conditions)	21	7.0
Total	300	100.0
Clients of the organization		
Federal Government	141	47.0
State Government	66	22.0
Local Government	24	8.0
Private Clients	63	21.0
Others	6	2.0
Total	300	100.0
Technical staff in the organization		
Less than 20 Years	69	23.0
21-30 Years	99	33.0
31-40 Years	66	22.0
41-50 Years	48	16.0
Above 50 Years	18	6.0
Total	300	100.0
Less than 20 Years	69	23.0

Table 6 shows responses to questions on organization worked for, most of them work for contracting organization (132) representing 44%. The result for demographic information of the respondents regarding position in your organization, the results indicated that most of the respondents are managing directors and head of units, suggesting that the data is reliable were quantity surveyors (108) representing 36%. On the years of experience of the respondents, majority of the respondents working in building construction industry between 16- 20 years in the study area with the percentage of 32.0%. Also the years of existing building construction industry therefore, majority of the respondents responded that their organisation existed between 16- 20 years in the study area with the percentage of 47.0%. Furthermore, on the type of project does your organization carryout. The organization carryout mostly building construction (153) representing 51%.

2. ARS = 0.331 P<0.001 at 5%
3. VIF = 2.654 P<0.573
4. AVFIF = 3.404 if <=5 ideally 3.3
5. R2 = 0.33 = 33% (validation of the model)

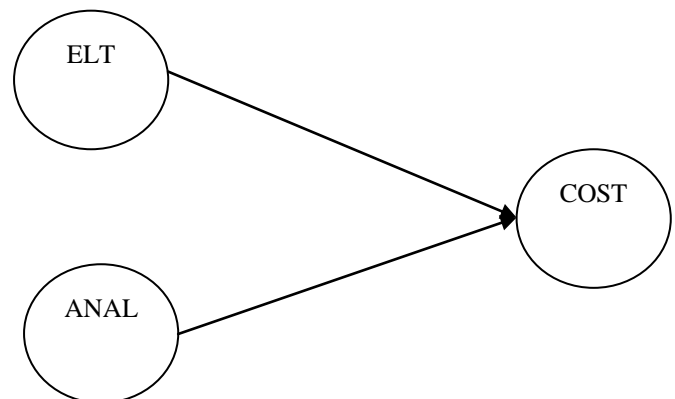


Figure 1: 2D graph regression model indices.

Table 2: Relationship between Cost and Clients Requirement Management Inefficiencies

		Elicitation	Analysis	Specification	Validation	Cost
Elicitation	Correlation Coefficient	1.000	.788**	.836**	.713**	-.010
	Sig. (2-tailed)	.	.000	.000	.000	.867
Analysis	Correlation Coefficient	.788**	1.000	.778**	.686**	-.087
	Sig. (2-tailed)	.000	.	.000	.000	.134
Specification	Correlation Coefficient	.836**	.778**	1.000	.801**	.051
	Sig. (2-tailed)	.000	.000	.	.000	.378
Validation	Correlation Coefficient	.713**	.686**	.801**	1.000	.119*
	Sig. (2-tailed)	.000	.000	.000	.	.040
Cost	Correlation Coefficient	-.010	-.087	.051	.119*	1.000
	Sig. (2-tailed)	.867	.134	.378	.040	.
N		300	300	300	300	300

** . Correlation is significant at the 0.01 level (2-tailed).
* . Correlation is significant at the 0.05 level (2-tailed).

The relationship between design-build projects delivery and clients' requirement management in the study areas were investigated using Pearson product-moment correlation coefficient (Table 25). The result shows that there is negligible negative correlation between the elicitation and cost variables, $r = -.010$, $n = 300$, $p = 0.867$ making it statistically insignificant $p < .05$ (Pallant, 2011). The result also shows that there is weak insignificant, negative correlation between the analysis and cost variables, $r = -.087$, $n = 300$, $p = 0.134$ making it a statistically insignificant at $p < .05$ (Pallant, 2011). It also shows that there is weak insignificant, positive correlation between the specification and cost variables, $r = .051$, $n = 300$, $p = 0.378$ making it a statistically insignificant at $p < .05$ (Pallant, 2011). However, it also shows that there is weak significant, positive correlation between the validation and cost variables, $r = 0.119$, $n = 300$, $p = 0.040$ making a statistically significant at $p < .05$ (Pallant, 2011).

Table 3: Result of structural model
General Model Indices

1. AVPC = 0.160 (P<0.0001) at 5%

The structural model for the effects of moderating transactional leadership behaviour on the relationship between clients' requirement management and design build delivery in Abuja, Nigeria. The clients' requirement management being the independent constructs comprising of elicitation (ELT), analysis (ANAL). The Design Build Delivery (DBD) was the dependent construct. The structural model beta coefficient value between elicitation (ELT) and design build delivery (DBD) was $\beta = 0.02$ at p -value < 0.35 which was insignificant at p -value = 0.05 level of significance. The structural model beta coefficient between analysis (ANAL), and design build delivery (DBD) was $\beta = 0.66$ at p -value < 0.01 significant; this was significant at p -value = 0.05 level of significance. The structural model beta coefficient between validation (VALID) and design build delivery (DBD) was $\beta = 0.25$ at p -value < 0.01 which was significant at p -value = 0.05 level of significance. The structural model shown shows that the beta coefficients between the independent constructs and dependent construct were all significant at $p = 0.05$ level of significance except for elicitation (ELT) and design build delivery (DBD) was insignificant.

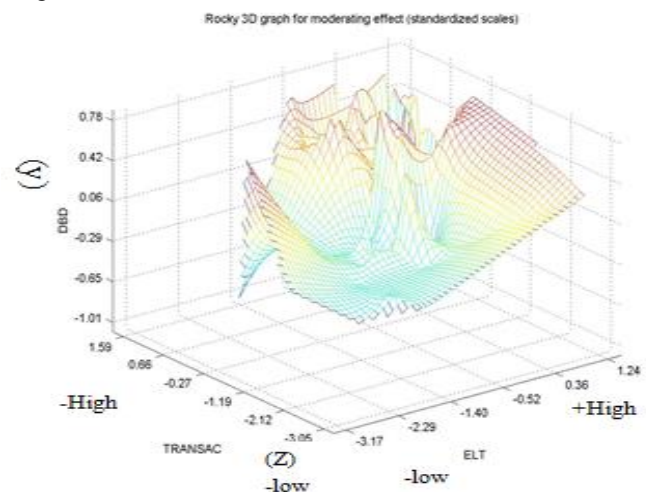


Figure 2 Design build delivery and Transactional leadership and Elicitation

Interpretation of figure 2, 3D Rocky graph

- i. Low interaction of moderation activities of Transactional Leadership (Z) with elicitation ELT (x) results in low DBD.
- ii. High interactions of moderation activities of Transactional Leadership (z) with elicitation (ELT, x) results in high DBD
- iii. The variance in the DBD delivery is explained by the structural model output of $\beta = 0.67$ $p = 0.011$
- iv. Theoretical implications is that elicitation influences cost delivery.
- v. Practical implication is that DB delivery increases if transactional leadership (z) interaction is high.

5. Conclusion and Future Scope

Client requirements management elicitation is one of the factors influencing project success in project delivery. This study confirmed that elicitation of client requirement management positively influences design build cost delivery if it is strengthened with a high contingent rewards of the transactional leadership. This is part of a larger ongoing PhD dissertation in the faculty of Environmental studies ATBU

Theoretical Contribution

The study report effect of CRM (elicitation) on DBD (cost) in a new under examined DB population.

Practical Contribution

The study reported that the influence of Elicitation on DBD (cost) is contingent on a third variable, transactional leadership.

Conflict of Interest

This unique replica is not being considered for publishing anywhere and has not been disseminated. There are no conflicts of interest to declare as a result.

Funding Source

There was no external funding for this study.

Author Contributions

Each author made an equal contribution to this research dissertation. They all looked over and verified the original manuscript's final draft.

Acknowledgments

We praise God and offer him all the glory. We also thank our families, the entire staff of the Department Quantity Survey, ATBU Bauchi, and for their encouragement in making our study a success.

References

- [1] Idoro, G. "Influence of Project Plans on the Outcome of Construction Projects Procured by Design and Build (DB) in Nigeria". *JCIDC*, Vol.17, Issue.2, pp. 81-103, 2012.
- [2] Muriro, A. "Design and Build Procurement Method In Practice: Key Challenges and Practice Based Enablers ,Ph.D Thesis in Construction Management" Submitted in Partial Fulfillment for the Requirements of Ph.D Degree to the School of the Built Environment, College of Science & Technology, University of Salford, Manchester, pp.1-216, 2015.
- [3] Neuman, W. "Social Research Methods: Quantitative and Qualitative Approach", 6th edition, Allyn & Bacon 1945.
- [4] Adamtey, S. "A Case Study of Performance Analysis of Design-Build Integrated Project Delivery", *IJCER*, Vol.2 Issue.5, pp 1-17, 2019.
- [5] PMBOK Project Management Institute. Guide to Project Management Body of Knowledge: 5th edition, 2012.
- [6] Sanvido, V., Parfitt, K., Guveris, M., and Coyle, M. "Critical Success Factors for Construction Projects", *J. Constr. Eng. Manage.*, Vol.118, Issue.1, pp.94-111, 1992.
- [7] Kasauli, R., Knauss, E., Horkoff, J., Liebel, G., & de Oliveira Neto, F. G. "Requirements engineering challenges and practices in large-scale agile system development". *Journal of Systems and Software*, Vol.172, Issue .11, pp.18-51, 2021.
- [8] Alex, S. "Management and leadership what can MB do in my work day". *First research paradigms Applied*, Vol.172, Issue.11, pp.19-23, 2019.
- [9] Martin, J. N. "Systems engineering guidebook", A process for developing systems and products. CRC press, 2020.
- [10] Aamodt M.G. "Industrial organizational psychology An applied approach (8,a) engage learning", 2016.
- [11] Bass, B.M., Avolio, B.J., Jung, D.I, and Berson T. "Predicting unit performance by assessing transformational and transformation leadership", *Journal of Applied Psychology*, Vol.72, Issue.11, pp.18-56, 2018.
- [12] Kamaruzzaman Muhammad, OussamaSaoula, Mustafa Rashid Issa, and Umair Ahmed "Contract management and performance characteristics: An empirical and managerial implication for Indonesia". *Management Science Letters*, Vol.9, Issue.11, pp.1289-1298 2019.
- [13] Hargis M.B.; John D Wyatt, Chris Piotroluski. "Developing leaders: Examining the Role of Transactional Leadership across contents", *Business or development journal*, Vol.29, Issue.3, pp.51-66, 2011.
- [14] Tiong, R.L.K., Yeo, K.T., and McCarthy S.C. "Critical Success Factors in Winning BOT Contracts". *Journal of Construction Engineering and Management*, Vol.118, Issue.2, pp.217-228, 1992.
- [15] Aga D.A; Noorder – haven N; Valajo B. "Transformational leadership and Project success the mediating role of team building Int V. Prog". *Management*, Vol.16, Issue.3, pp.806-818, 2006.
- [16] Creswell, J. W., and Plano Clark, V.L., "Designing and Conducting Mixed Methods Research". Thousand Oaks, CA: Sage, 2018.
- [17] Jallow et al., "An empirical study of the complexity of requirement s management in construction projects". *Engineering construction and Architectural Management*, Vol.21, Issue.5, pp.505-531, 2014.
- [18] Atkinson, R. "Project Management: Cost, Time and Quality, Two Best Guesses and A Phenomenon, Its Time To Accept Other Success Criteria". *International Journal of Project Management*, Vol.17, Issue.6, pp.337-42, 2015.
- [19] Al-Zahrani, J. I. and Emsley, M. W. "The Impact of Contractors' Attributes on Construction Project Success: A Post Construction Evaluation." *Int. J. Proj. Manag*, Vol.31, Issue. 2, pp.313-322, 2013.
- [20] Creswell, J. W., "Research design, Qualitative, Quantitative and Mixed Methods Approaches, London", 3rd ed. Sage, 2014.
- [21] Ling, F.Y.Y., Low, S.P., Wang, S.Q., and Egbelakin, T., "Models for Predicting Project Performance in China using Project Management Practices Adopted by Foreign AEC Firms". *Journal of Construction Engineering and Management*, Vol.134, Issue.12, pp.983-990, 2008.