Built Environment Journal

Faculty of Architecture, Planning and Surveying

BUILT ENVIRONMENT JOURNAL (BEJ)

Built Environment Journal

Faculty of Architecture, Planning and Surveying

Impact of Procurement Methods and Project Types on Construction Projects Performance

Jimoh Richard[1]*, Oyewobi Luqman[2] and Aliu Nurayn[3]
[1,3]Building Department, Federal University of Technology, Minna-Nigeria
[2]Quantity Surveying Department, Federal University of Technology, Minna-Nigeria
rosney@futminna.edu.ng

ABSTRACT

Procurement systems provide the general framework and organisation of line of responsibilities for stakeholders within the construction process. It is a major contributor to client satisfaction in achieving successful completion of projects. This paper focused on examining the impact of different procurement methods and project types on performance of construction projects. The research employed a quantitative approach using structured questionnaires to elicit information from 420 stakeholders in the Nigerian construction industry. The relationship between project types and procurement systems was established as well as their influence on project delivery. The data were analysed and discussed. The results showed that there is correlation between procurement methods and factors used in assessing project success, while no relationship exists between procurement methods and project type. The implication is that cost, time and quality are factors affecting the selection of procurement methods.

Keywords: *Construction project; procurement methods; project performance; project types; Nigeria*

INTRODUCTION

The construction industry globally is highly fragmented; therefore the coming together of participants in the building process on an *ad hoc* basis has significant effect on project delivery and performance. Hence, the obvious separation of clients, main or general contractors and subcontractors requires an arrangement to procure the projects and establish authorities between the stakeholders for construction work to commence (Gruneberg and Hughes, 2006). Since Emerson's (1962) and Latham's (1994) reports have been published, the need to implement procurement methods in building process has heightened. However, evidence from the literature indicates that though there are many distinct methods available for realising construction projects, but in practice only a relatively few procurement methods are employed (Love *et al*., 1998; Masterman, 1992; Ng, Luu and Chen, 2002).

Broadly, construction procurement systems are classified as traditional and non-traditional procurement systems (Harris & McCaffer, 2005). For a very long time in the UK, traditional construction procurement system has been the major route for procuring constructed facilities after the industrial revolution, and to date, it remains the foremost procurement system in the UK (Saad, Jones and James, 2002; Royal Institution of Chartered Surveyors (RICS), 2007). This option appears as the most preferred system of procuring construction project by client who is involved in the construction process. The continued increase in the complexity of buildings, the need to manage project finance, the need to reduce design coupled with the need to have constructed facilities realised faster without compromising the client objectives has resulted in the decline in the use of the traditional procurement system to procure building works across the globe (Love *et al*., 1998; Maizon, 1996). Xue, Wang, Shen and Yu (2007) and Eriksson, Nilsson and Atkin (2008) advanced the reasons for this decline to include acrimonious relationship which often leads to conflicts and disputes; poor collaboration among parties, poor focus on customers' needs, and incessant failure to meet clients' requirements which have become prevalent in the construction industry.

Literature on research that examined procurement systems in the Nigerian construction industry established that both traditional and non-traditional procurement options are being practised in the industry (Babatunde *et al*., 2010; Ibrahim, Daniel and Ahmad, 2014). However, traditional procurement method is more popular in the Nigerian construction industry than the non-traditional, while the use of traditional construction procurement option in the industry accounts for most of the projects underperformance in terms of cost and time (Ojo *et al.,* 2006; Ibrahim *et al*., 2014). As a result of this and the demand for suitable procurement method to be employed in achieving successful projects to reduce the impact of time overruns, poor quality and cost overruns of construction projects on the growth and performance of the construction industry, other procurement systems have been explored.

Considering the plurality of research in the industry that investigates procurement systems being used in the Nigerian construction industry, none of them examines the influence of procurement methods and project types on performance (time, quality and cost) in Nigeria. To achieve this aim, the research presented in this paper addresses the following hypotheses:
- *There is statistical significant relationship between the different types of procurement methods available for procuring building projects and the various project types.*
- *There is statistical significant relationship between the different types of procurement methods available for procuring building projects and project success criteria.*
- *There is significant relationship between project performance measures (cost and time overruns) and different procurement methods.*

OBJECTIVE PERFORMANCE OF THE VARIOUS PROCUREMENT METHODS

The construction industry professionals will be able to produce any project with any procurement method, if given unlimited time and cost resources and the client not being too enthusiastic about quality requirement. However, because of cost of finance and advantages in putting the building into early use, particularly by the private developers, clients have to impose limits on cost and time, and must be satisfied with the quality of the building (Naoum and Langford, 1987). Hence construction industry professionals have resorted to using the 'appropriate' procurement method to achieve the constraints imposed by the client. Naoum and Langford (1987) opined that the use of appropriate procurement method can define the project's success on cost, time and quality objectives. Construction project may be considered as being successful if the constructed facility is delivered on time, within the estimated cost and quality standards, and meets the client high level of satisfaction (e.g. Cookie-Davies, 2002; Naoum and Langford, 1987). Construction projects performance is a function of meeting client's need and satisfaction with regards to the roles and responsibilities of participants engaged in the construction process (Gruneberg and Hughes, 2006). This is the desire of many construction clients, but the project performance considered in this paper is measured against the widespread and traditional measures of performance based on the iron-triangle of cost, time and quality (Cookie-Davies, 2002).

However, Masterman (1992) argued that the approach being used by many construction project clients and their professional advisors in selecting the procurement methods can be haphazard, ill-timed and illogical. Therefore, wrong choice or inappropriate usage of suitable procurement options has been established to be one of the main problems of project performance and successful completion. Although, each procurement method exhibits different characteristics, have distinctive benefit and inherent disadvantages, but 'one-cap-fits-all' does not exist as there is no single best system that could suit all kinds of clients and projects (Ng *et al*., 2002). This research thus investigates which procurement method is more appropriate for different project types and what is their performance effect in meeting client's objectives in terms of cost, time and quality.

METHODS

This research employs quantitative research approach using structured questionnaires to elicit information as it has been successfully employed in previous similar studies (e.g. OJo & Ikpo, 2013). However, a number of researchers have acknowledged that survey questionnaire as a method of obtaining information often suffers from poor response rate, but it permits views from a wide range of credible participants to be elicited (e.g. Bryman, 2008). The list of active professionals and contractors on the register of relevant professional bodies in Abuja (Federal Capital Territory) were obtained amounting to 551 using formula technique to determine the minimum sample size (see Table 1). Thus, 551 questionnaires were self-administered using simple random sampling among main contractors, consultants, and clients (construction professionals working in client organisations), and of these, 420 were returned and used for the analyses. In an effort to obtain and ensure the credibility of the results, the questionnaires were administered to the participants with over five years' experience and who are actively involved in construction procurements in their respective organisations. This criterion was unambiguously stated in the request for information notice provided in the survey questionnaire. Nonetheless, the authors were unable to determine if this requirement in any way influence the response rate obtained, but the desire to get experienced participants that have requisite knowledge and to ensure that credible responses prevailed. This high response rate of 76.2% was possible because of the self-administration of the questionnaires and the series of follow-ups on phone and mails. A period of six (6) months was used in the administration of the questionnaires. The data obtained were analysed using correlation and regression methods of analyses to establish relationship and at the same time test the hypotheses.

Table 1: Sample size derivation table

S/No	Description Of Population	Population	Source Of Population	Sample Size At 95% Confidence Level
	CONSULTANTS			
1	Architects	64	Nigeria Institute of Architects, Abuja Chapter	56
2	Structural Engineers	58	Council for the regulation of engineering in Nigeria	51
3	Quantity Surveyors	76	Nigeria Institute of Quantity Surveyors, Abuja Chapter	64
4	Electrical & Mechanical Engineers	51	Council for the regulation of engineering in Nigeria	46
	CONTRACTOR			
5	Contractors	200	Federal Ministry of Works Registration Board	134
	CLIENTS			
6	Federal Ministries	57	Federal Ministry of Information	50
7	FCT local councils/ Municipal Authority	16	Federal Capital Authority	16
8	Corporate/ financial Institutions	127	Corporate affairs commission	97
9	Private individuals/ private developers	48	Corporate affairs commission and Federal inland revenue service	43
Total Questionnaires distributed				**557**

RESULTS AND DISCUSSION

Table 2 provides the breakdown of the 551 administered and 420 returned questionnaires. Of 134, 206 and 211 questionnaires that were self-administered to contractors, clients and consultants in building

projects in Abuja, 132, 180 and 108 questionnaires were returned from contractors, clients and consultants respectively, giving a total of 420 questionnaires returned.

   Table 2 also reveals the length of time or the period the respondents have been operating in the Nigerian construction industry. The respondents that have spent 20-25 years have the highest percentage of 42.8% with a response count of 180 followed by those that have spent 15-20 years with a response count of 84 representing 17.9%. The newest staff members that have been there for 5-10 years have the least response count of just 24 with 5.1%. On the other hand, the respondents that are oldest in the industry, spending 31 years and above have a response count of 60 accounting for 12.8% of the total respondents. In general, most of the respondents have at least five years working experience in the construction industry. Based on the number of years spent in the construction industry, majority of the respondents are well informed about the activities in the industry.

Table 2: Background information of respondents'

Categorisation of the groups			
Group	Number of questionnaires sent	Number returned	Response rate
Contractors	134	132	98.51%
Clients	206	180	87.38%
Consultants	211	108	51.19%
Total	551	420	76.23%
Year of experience in the construction industry			
Year of experience	Frequency	Percent	
5-10 years	24	5.1	
10-15 years	72	15.4	
20-25 years	84	17.9	
25 - 30 years	180	42.8	
31years and above	60	12.8	
Total	420	100.0	
Respondent profession in the organisation			
Professional role in the organisation	Frequency	Percent	
Architect	83	19.8	
Builder	85	20.2	
Quantity Surveyor	42	10.0	
Engineer (Civil, Structural, Mechanical and Electrical)	48	11.4	
Project Manager	162	38.6	
Total	420	100.0	

Project Type and Procurement Methods

   Using the quantitative survey approach to elicit information, a number of projects and constructed facility types as well as procurement methods were identified. Table 3 presents the project types and the respective procurement systems employed in delivering the projects obtained from the questionnaire survey. Table 3 indicates that traditional lump sum methods were majorly the procurement route used in the Nigerian construction industry to procure new projects 33.3% (amounting to 140). Design and build route was the closest indicating 26.2% of the total responses. Construction management methods account for 22.9% of the total survey, Contract Management and PPP have the lowest with counts of 56 and 18 representing 13.3% and 4.3% respectively. In all, most of the respondent's organisations execute combination of traditional, design & build, construction management, management contracting and PPP. This result shows that the organisations are well acquainted with the various procurement methods, hence their capabilities to give accurate answers to the questions asked. Also, the result confirms the study carried out by Babatunde *et al*. (2012), they ranked traditional method as the highest and most frequently used procurement method for procuring building projects in Nigeria. This finding is also in line with Saad, Jones and James (2002) study who argued that traditional construction procurement system has been the major route for procuring

constructed facilities for a very long time in the UK. This is not surprising as Nigeria still tows the UK construction industry ways of doing things.

Table 3 shows that respondents were involved in the procurement of a variety of project types, the most prominent project types were commercial and administrative offices (27.3%), followed by residential buildings (22.7%). This result affirms the nature of the study area which is the Federal Capital of Nigeria with many office buildings both for administrative and commercial purposes.

Table 3: Project types and procurement methods

Types of Project Awarded	Frequency	Percent
Offices	36	27.3
Industrial (Factories, Shopping Complexes and warehouses)	11	8.3
Health (Hospital)	18	13.6
Residential Houses	30	22.7
Commercial (Hotels, Banks, Markets, Shopping Mall)	23	17.4
Educational (Schools and Universities)	14	10.6
Total	132	100.0
Procurement methods	Frequency	Percent
Traditional Contract Method (Lump Sum)	140	33.3
Design and Build	110	26.2
Construction Management	96	22.9
Management Contracting	56	13.3
Public Private Partnership (PPP)	18	4.3
Total	420	100.0

Relationship between project type and procurement system

The previous research that focused on the Nigerian construction sector asserted that both the traditional and non-traditional procurement systems are in use in the industry. However, a major problem identified with traditional procurement system is the non-integration of design and construction (Ojo *et al*., 2006). To mitigate this shortcoming that is associated with the use of traditional procurement method, non-traditional systems such as design and build, management contracting and construction management have been encouraged (Dada, 2013; Oladinrin *et al*., 2013). Hence, the following hypothesis was formulated and tested:

H1: There is a statistical significant relationship between the different types of procurement methods available for procuring building projects and the various project types

Table 4 shows the correlation coefficient, level of significance between procurement methods and project types. The decision taken is based on the categorisation by Field (2013), a correlation of ±0.1 denotes small effect, ±0.3 represents medium effect and ±0.5 is a large effect. The results show that offices have a correlation coefficient of 0.217, a value that is weak but positive. It is statistically significant (p = 0.007). The same applies to Health (Hospital) with a value of 0.326. All other Project Types give values that are statistically insignificant. Conclusively, with 2 "reject" and 4 "accept", the correlation results show that most of the project types are statistically insignificant and hence, the hypothesis that stated that there is correlation between procurement methods and project types is partially supported. Hence, the procurement methods available are not dependent on the types of project available.

Table 4: Correlation analysis of procurement methods and project type

Project Type	Correlation Coefficient	P-value	Significance of Correlation	Decision
Offices	0.217**	0.007	Significant	Reject
Industrial (Factories, Shopping	0.054	0.506	Not Significant	Accept

Project Type	Correlation Coefficient	P-value	Significance of Correlation	Decision
Complexes and warehouses)				
Health (Hospital)	0.326**	0.000	Significant	Reject
Residential Houses	0.067	0.405	Not Significant	Accept
Commercial (Hotels, Banks, Markets, Shopping Mall)	0.151	0.059	Not Significant	Accept
Educational (Schools and Universities)	-0.007	0.931	Not Significant	Accept

Procurement methods and project success criteria

In order to determine the relationship between the various procurement methods studied and the identified project success criteria, the following hypothesis was tested:

H2: There is statistical significant relationship between the different types of procurement methods available for procuring building projects and project success criteria.

Table 5 shows weak correlation coefficient between procurement method and project success criteria except health and safety measures (i.e. when no causalities recorded to complete a project) that indicate medium effect on construction projects. However, the procurement methods used have significant effects on all the measures of project success criteria except "When no conflicts recorded to complete a project" that is statistically insignificant. The correlation results show that most of the factors are statistically significant and hence, the hypothesis that states that there is statistical significant relationship between the different types of procurement methods available for procuring building projects and project success criteria is accepted. That is, there is correlation between procurement methods and project success criteria. The implication is that cost, time and quality are factors affecting the selection of procurement methods. Hence, the procurement methods available are dependent on the project success criteria. These results are in line with the findings of Eyitope *et al.* (2012), who inferred that completing a project within its budgeted cost is more relieving and satisfying to the client. The findings are also in consonance with assertion of Peter *et al.* (2008) who argued that causalities constitute hindrances to the progress of work and consequently impede the success of the project. Nonetheless, conflict within a project also constitute a great hindrance to the progress of work as this could amount to disruption of work, which could lead to time overrun as posited by Maizon *et al.* (2006) but the study shows its effect is insignificant.

Table 5: Correlation analysis of procurement methods and project success criteria

Factor	Correlation Coefficient	P-value	Significance of Correlation	Decision
Completing a project within budgeted cost	0.210**	0.008	Significant	Reject
Completing a project within the estimated construction time	0.225**	0.005	Significant	Reject
Satisfying with the quality of a project	-0.170**	0.033	Significant	Reject
When no conflicts recorded to complete a project	-0.068	0.402	Not Significant	Accept
When no causalities recorded to complete a project	-0.435**	0.000	Significant	Reject

The effect of the different procurement systems on project performance (cost and time overruns)

Construction projects performance is measured using the most commonly used parameters of cost, time and quality. This is due to the fact that construction clients want their project completed on time, within the budgeted cost without compromising the quality and safety. The performance of project with respect to the procurement method used is measured using cost and time. Therefore, to establish whether the various procurement systems have any effect on project performance, the hypothesis stated below was tested.

H3: There is significant relationship between project performance measures (cost and time) and different procurement methods.

Table 6 shows the results of the regression analysis of different procurement types on cost performance of construction projects. The coefficient of determination R^2 ranges from 0.52, 0.88 for the entire projects considered. The significant level shows that there is a significant effect of cost overrun on contract sum for traditional method, which implies that other procurement routes should be considered for procurement as it relates to reliability of estimated cost. These findings are in tune with the findings of Jaafar and Nuruddin (2012) and Eyitope *et al.* (2012), who confirmed that the increasing awareness of construction stakeholders to the benefits of other procurement methods as opposed to the traditional procurement method. However, this is contrary to the submission of Adesanya (1992) and Enekwechi (1993) which identified traditional procurement as the best method in Nigeria to achieve estimated time target and cost budget. The reason for this may not be farfetched in that these studies were conducted more than 20 years when designs and construction were simpler than what we have presently. The findings also supported the result of Rose and Manley (2011) who reported their research work based on forty-two case studies that 78% of management contracting projects were completed within or less than their budgeted cost compared with only 30% traditional contracts. The results of similar research work by Mathonsi and Thwala (2012) in Southern Africa confirmed the above result.

Table 6: Summary of regression analysis of cost overrun for different procurement methods

Project Size	R2 (Adjusted)	Regression Equation	P.value	Remarks
Regression Analysis of Cost Overrun (Co) on Contract Sum (Cs)				
Traditional Method				
1-10 million	0.64	Cs = 0.633+3.725Co	0.0001	Significant
11-100 million	0.73	Cs = 0.368+2.7776Co	0.0000	Significant
Above 100 million	0.58	Cs = 0.356+1.655Co	0.0000	Significant
Design and Build Method				
1-10 million	0.69	Cs = 0.452+3.895Co	0.1000	Not Significant
11-100 million	0.62	Cs = 0.321+2.651Co	0.2000	Not Significant
Above 100 million	0.88	Cs = 0.821+1.612Co	0.2000	Not Significant
Project Management Method				
1-10 million	0.76	Cs = 0.410+3.521Co	0.2000	Not Significant
11-100 million	0.79	Cs = 0.201+2.416Co	0.1000	Not Significant
Above100 million	0.59	Cs = 0.301+1.430Co	0.5000	Not Significant
Management Contracting Method				
1-10 million	0.81	Cs = 0.391+3.310Co	0.0000	Significant
11-100 million	0.73	Cs = 0.290+2.201Co	0.1000	Not Significant
Above 100 million	0.64	Cs = 0.910+1.343Co	0.2000	Not Significant
PPP Method				
1-10 million	0.64	Cs = 0.150+3.267Co	0.2100	Not Significant
11-100 million	0.52	Cs = 0.482+2.722Co	0.0700	Not Significant
Above 100 million	0.58	Cs = 0.290+1.327Co	0.1000	Not Significant

Table 7 presents the results of the regression analysis of different procurement routes and its effects on time performance of construction projects in terms of time overrun. The coefficient of determination R^2 ranges from 0.24 to 0.71 for whole projects considered. The results showed that insignificant effects exist between other procurement methods and project duration except traditional methods. This result is supported by earlier researchers (e.g. Maizon et al., 2006; Peter *et al.*, 2008) that asserted that other procurement methods other than traditional route allow for more efficient and effective coordination of works, materials, manpower and plants, thus making construction time shorter compared to other procurement systems.

Although in the construction industry, it is only in few instances that the same contractor can be involved in identical buildings with different procurement methods. This therefore, makes the research work of Oztas and Okmen (2004) to be of particular interest. Oztas and Okmen (2004) evaluated the time performance of ten design and build projects against seven traditional industrial projects. These projects were executed by the same contractor who built all the seventeen industrial projects for various owners and consultants in the United Kingdom. They reported that design and build projects were constructed within an average of eighteen months while the traditional projects took an average of twenty-seven months. Oztas and Okmen (2004) by focusing on one type of building and one potential contractor eliminate certain variable concerned with the technology of the building and variance in pricing procedure. This suggests that differences in results are more likely to be the different procurement methods employed upon the projects.

Table 7: Summary of regression analysis of time overrun for different procurement methods

Regression Analysis of Time Overrun (To) on Contract Sum (Cs)				
Traditional Method				
Project Size	R2 (Adjusted)	Regression Equation	P_ value	Remarks
1-10 million	0.24	Cp = 0.421+3.920 To	0.0000	Significant
11-100 million	0.53	Cp = 0.388+2.329 To	0.0002	Significant
Above 100 million	0.58	Cp = 0.856+1.545 To	0.0001	Significant
Design and Build Method				
1-10 million	0.43	Cp = 0.353+3.655 To	0.1000	Not Significant
11-100 million	0.61	Cp = 0.368+2.457 To	0.1000	Not Significant
Above 100 million	0.38	Cp = 0.956+1.855 To	0.1000	Not Significant
Project Management Method				
1-10 million	0.54	Cp = 0.733+3.765 To	0.7500	Not Significant
11-100 million	0.48	Cp = 0.568+2.7876 To	0.1000	Not Significant
Above 100 million	0.51	Cp = 0.456+1.455 To	0.7000	Not Significant
Management Contracting Method				
1-10 million	0.70	Cp = 0.561+3.671 To	0.3000	Not Significant
11-100 million	0.71	Cp = 0.356+2.810 To	0.6000	Not Significant
Above100million	0.62	Cp = 0.626+1.510 To	0.2000	Not Significant
PPP Method				
1-10 million	0.60	Cp = 0.562+3.720 To	0.1500	Not Significant
11-100 million	0.47	Cp = 0.389+2.682 To	0.7000	Not Significant
Above 100 million	0.39	Cp = 0.630+1.673 To	0.3000	Not Significant

CONCLUSION

Selection of appropriate procurement method is a herculean task for all the stakeholders especially the client due to various factors regulating the execution and realisation of construction projects. Individual client has different needs and requirements and as such measure project success differently as no two construction projects are entirely the same in every respect, thus, no single method of procurement can be appropriate for every project. The research presented in this paper examined the impact of different procurement methods and project types on performance of construction projects. Mostly, project performance or success is measured using the iron triangle of cost, time and quality which are considered as the three essential parameters of project performance,

but health and safety has found its way into these performance criteria as shown in the study. The research showed that construction clients in Nigeria are becoming more informed due to the quest to have their project completed on time, within budget and with the right quality; the adoption of different procurement methods show that the construction industry is now trying to meet the clients' needs. The study indicated that different procurement method have different effect on the cost and time performance of construction projects. The results established that there is a relationship between procurement methods and factors used in assessing project success, while no relationship exists between procurement methods and project types. The implication is that cost, time, quality and health and safety are factors affecting the selection of procurement methods.

REFERENCES

Adesanya, O.M. (1992). Management Contracting Concepts and Nigeria's Construction Industry. Paper Presented At the Joint Seminar on Management Contract of Quantity Surveyors Registration Board of Nigeria and Nigerian Institute of Quantity (18[th]September 1992, Lagos)

Babatunde, S.O., Opawole, A. & Ujaddughe, I.C. (2010). An Appraisal of Procurement Methods in the Nigerian Construction Industry. *Civil Engineering Dimension*, 12, 56-58. Retrieved from www.puslit.petra.ac.id/../c1v10120010.pdf/ (Accessed 14 December 2012).

Bryman, A. (2008). *Social Research Methods*, 3rd edition. New York: Oxford University Press

Cooke-Davies, T.J. (2002). The 'real' success factors on projects. *International Journal of Project Management,* 20, 185–190.

Dada, M.O. (2013). Conflicts in construction projects procured under traditional and integrated systems: A correlation analysis. *International Journal of Construction Supply Chain Management.* 3(1), 1-15

Emerson, H. (1962). *Report for Ministry of Works: Survey of Problems before the Construction Industries*. London: HMSO

Enekwechi, C.O. (1993). Construction Management as a Contract Procurement System', *Builders Magazine*, VII (6), 17-18

Eriksson, P. E., Nilsson, T. & Atkin, B. (2008). Client perceptions of barriers to partnering. *Engineering, Construction and Architectural Management*, 15(6), 527–539

Eyitope, A., Ajibola, M., Ajibola, O. & Gbadebo, F. (2012) Critical Selection Criteria for Appropriate Procurement Strategy for Project Delivery in Nigeria. Retrieved from http://jetems.sholarlinkresearch.org/article (Accessed 31 January 2013)

Field, A. (2013). *Discovery statistics using IBM SPSS statistics*, 4th edition. Los Angeles: Sage Publication Limited.

Gruneberg, S. and Hughes, W. (2006), ''Understanding construction consortia: theory, practice and opinions'', Royal Institution of Chartered Surveyors (RICS) Research Papers, 6(1), 1-53.

Ibrahim, I. I., Daniel, S. and Ahmad, A. (2014). Investigating Nigerian Indigenous Contractors Project Planning In Construction Procurement: An Explanatory Approach. *International Journal of Civil & Environmental Engineering IJCEE-IJENS*, 14(04), 16-25

Jaafar, M & Nuruddin, A.R. (2012). The development of Public and Private construction procurement system in the Malaysian construction industry. *Journal of Design and Built Environment,* 11, 1-11. Retrieved from http://e-journal.um.edu.my/filebank/publis (Accessed 12 February 2013)

Latham, M. (1994). *Constructing the team: Joint Review of Procurement and Contractual Arrangements in the United Kingdom Construction Industry: Final Report*. London: Department of Environment. Retrieved from http://hdl.handle.net/10068/491035 (Accessed 21 September 2011)

Love, P.E.D., Skitmore, R.M. & Earl, G. (1998). Selecting an appropriate procurement method for a building project. *Construction Management and Economics*, 16, 221-223

Maizon, H., Melissa, C.Y., Ng Chu, Y., Ng Sock, H., Shim Mong, H. & Tay Lee, Y. (2006). Factors Influencing the Selection of Procurement Systems by Clients. *Proceeding of International Conference on Construction Industry 2006*, Padang, Indonesia, 21st – 25th June, 1-10

Maizon, H. (1996). The Effects of Procurement Systems on performance of construction projects in Malaysia**.** *Proceedings of CIB W92*: *North Meets South: Developing Ideas, The University of Natal, Durban, South Africa*

Masterman, J.W.E. (1992). *An Introduction to Building Procurement Systems*. London: E and FN Spon

Masterman, J.W.E. & Gameson, R. (1994). Client characteristics and needs in relation to their selection of procurement systems. In: Rowlinson, S. (ed.) *Proceedings of East Meets West Procurement Systems Symposium,* CIB Publication 175, 4–7 December, Hong Kong, 79–87

Mathonsi, M.O & Thwala, W.D. (2012), Factors influencing the selection of procurement systems in the south-african construction industry. *African journal of business management*, 6, 3583-3594. Retrieved from http://www.academicjournals.org.AJBM (Accessed 12 February 2012)

Naoum, S.G., & Langford, D.A. (1987). *Management Contracting in managing Construction Worldwide*. London: Chartered Institute of Building

Ng, T. S., Luu, D. C. & Chen, S. E. (2002). Decision criteria and their subjectivity in construction procurement selection. *The Australian Journal of Construction Economics and Building,* 2(1), 70-80

Ojo, S. O. & Ikpo, I. J. (2013). Determining the Performance of Procurement Methods against Selection Criteria using Outranking – Satisfying Methodology. *Journal of Engineering, Project, and Production Management*, 3(2), 74-84

Ojo, S.O., Adeyemi, Y.A. & Fagbenle, I.O. (2006). The Performance of Traditional Contract Procurement on Housing Projects in Nigeria. *Civil Engineering Dimension Journal,* 8(2), 81-86.

Oladinrin, O.T., Olatunji, S.O. & Hamza, B.T. (2013). Effect of selected procurement systems on building project performance in Nigeria. *International Journal of Sustainable Construction Engineering & Technology,* 4(1) 48-62

Oztas, A., & Okmen, O.(2004). Risk Analysis in Fixed-Price Design-Build Construction Projects. *Building and Environment Journal,* 39, 229-237.

Peter, D., Peter, L., & David, B. (2008). Building Procurement Methods (Report). Construction Innovation. Retrieved from www.construction-innovation.info/im (Accessed 14 January 2013)

Royal Institution of Chartered Surveyors (RICS) (2007). *Survey of Building Contracts in Use During 2007*. London: The Royal Institution of Chartered Surveyors

Saad, M., Jones, M. & James, P. (2002). A review of the progress towards the adoption of supply chain management (SCM) relationships in construction. *European Journal of Purchasing and Supply Management*, 8(3), 173–183

Xue, X., Wang, Y., Shen, Q. & Yu, X. (2007). Coordination mechanisms for construction supply chain management in the Internet environment. *International Journal of Project Management*, 25(2), 150–157

NOTES FOR CONTRIBUTORS

SUBMISSION
All materials submitted for publication must be original, unpublished work and are not under consideration for publication elsewhere.

Papers may be submitted by e-mail to **bej.fspu@gmail.com**. Alternatively, 2 copies of the manuscript together with a full version on CD may be submitted to the Editorial Board.

Address:
Assoc. Prof. Datin Dr. Hamimah Adnan
Managing Editor
Built Environment Journal (BEJ)
Faculty of Architecture, Planning and Surveying
Universiti Teknologi MARA
40450 Shah Alam
Selangor, Malaysia.

Editors reserve the right to edit/comment on the content of the manuscript. If major or substantial amendments are recommended by the editors the authors will be given the option to accept or reject the recommendations (and withdraw participation).

MANUSCRIPT PREPARATION
Language
The manuscript must be submitted in British English.
Length
The manuscript should be within the range of 5000 – 7500 words in Times New Roman font, 12 point type. Authors are requested to state how many words their paper contains. The manuscripts should be typed and single spaced on one side of A4 paper only, with 4 cm margins on the sides, the top and the bottom. All text should be set aligned justified throughout. The pages should be numbered in order.
Title Page
The first page of the manuscripts must contain the full title, name of author(s), designation(s) of affiliation(s), highest academic qualification and the present address(es) with the telephone/fax/e-mail contact information listed.
Abstract and Keywords
The abstract must not exceed 250 words and should summarise the paper including the main conclusions. There shall be not more than 5 keywords.
Text
The order when typing manuscripts: Title, author(s), highest academic qualification, Affiliations, Abstract, Keywords, Main Text (Aim, Problem Statement/Issues, Methodology and Analysis),Conclusion and Recommendations, References, Acknowledgment and Appendix (if any). Simple language, short sentences and a good use of headings are encouraged. Headings should be numbered and the use of more than three levels of heading should be avoided. Headings and paragraphs should be separated by two carriage returns. Text following a heading should not be indented.

Illustration
Photographs, diagrams and charts should be referred to as "Figure(s)" and numbered in the order in which they are referred to in the text. Maps and diagrams should be submitted in a form ready for reproduction, all in legible digital format. Please note that illustrations in the journal shall be printed in black-and-white or grey-scale.

Units
All measurements and data should be given in metric units or, if other units are used, then the metric equivalent should be given in parentheses.

Reference
The Harvard system is used. The reference is referred to in the text by the following manner:

Onojaefe D, Ukpere WI (2009). *Partnership and the e-commerce initiative of small businesses. African Journal Business Management, 3(12): 855-861.*

Shahimi, N. (2006). *A Study on The Achievement of Class F Contractors. Shah Alam: Department of Quantity Surveying, Faculty of Architecture, Planning and Surveying, Universiti Teknologi MARA Malaysia.*

Swan W, Khalfan MMA (2007). *Mutual Objective Setting For Partnering Projects in the Public Sector. Engineering, Construction and Architectural Management, 14(2): 119-130.*

Stevens, R. (2004). "*Partnering, Environmental & Risk Management",. International Construction Conference 2004. CIOB Malaysia.*

CIDB (2011*), Construction Industry Development Board, Malaysia, www.cidb.gov.my.*

COPYRIGHT

NOTES FOR CONTRIBUTORS

SUBMISSION

All materials submitted for publication must be original, unpublished work and are not under consideration for publication elsewhere.

Papers may be submitted by e-mail to **bej.fspu@gmail.com**. Alternatively, 2 copies of the manuscript together with a full version on CD may be submitted to the Editorial Board.

Address:
Assoc. Prof. Datin Dr. Hamimah Adnan
Managing Editor
Built Environment Journal (BEJ)
Faculty of Architecture, Planning and Surveying
Universiti Teknologi MARA
40450 Shah Alam
Selangor, Malaysia.

Editors reserve the right to edit/comment on the content of the manuscript. If major or substantial amendments are recommended by the editors the authors will be given the option to accept or reject the recommendations (and withdraw participation).

MANUSCRIPT PREPARATION

Language
The manuscript must be submitted in British English.

Length
The manuscript should be within the range of 5000 – 7500 words in Times New Roman font, 12 point type. Authors are requested to state how many words their paper contains. The manuscripts should be typed and single spaced on one side of A4 paper only, with 4 cm margins on the sides, the top and the bottom. All text should be set aligned justified throughout. The pages should be numbered in order.

Title Page
The first page of the manuscripts must contain the full title, name of author(s), designation(s) of affiliation(s), highest academic qualification and the present address(es) with the telephone/fax/e-mail contact information listed.

Abstract and Keywords
The abstract must not exceed 250 words and should summarise the paper including the main conclusions. There shall be not more than 5 keywords.

Text
The order when typing manuscripts: Title, author(s), highest academic qualification, Affiliations, Abstract, Keywords, Main Text (Aim, Problem Statement/Issues, Methodology and Analysis),Conclusion and Recommendations, References, Acknowledgment and Appendix (if any). Simple language, short sentences and a good use of headings are encouraged. Headings should be numbered and the use of more than three levels of heading should be avoided. Headings and paragraphs should be separated by two carriage returns. Text following a heading should not be indented.

Illustration
Photographs, diagrams and charts should be referred to as "Figure(s)" and numbered in the order in which they are referred to in the text. Maps and diagrams should be submitted in a form ready for reproduction, all in legible digital format. Please note that illustrations in the journal shall be printed in black-and-white or grey-scale.

Units
All measurements and data should be given in metric units or, if other units are used, then the metric equivalent should be given in parentheses.

Reference
The Harvard system is used. The reference is referred to in the text by the following manner:

Onojaefe D, Ukpere WI (2009). *Partnership and the e-commerce initiative of small businesses. African Journal Business Management, 3(12): 855-861.*

Shahimi, N. (2006). *A Study on The Achievement of Class F Contractors. Shah Alam: Department of Quantity Surveying, Faculty of Architecture, Planning and Surveying, Universiti Teknologi MARA Malaysia.*

Swan W, Khalfan MMA (2007). *Mutual Objective Setting For Partnering Projects in the Public Sector. Engineering, Construction and Architectural Management, 14(2): 119-130.*

Stevens, R. (2004). "*Partnering, Environmental & Risk Management*",. *International Construction Conference 2004. CIOB Malaysia.*

CIDB (2011*), Construction Industry Development Board, Malaysia, www.cidb.gov.my*.

COPYRIGHT

Once published in the Built Environment Journal, the copyright including electronic copyrights of the article is automatically invested with UiTM. The copyright covers the exclusive use of rights to reproduce and distribute the article, including reprints, photography reproductions, microfilm, electronic publication or any reproduction of a similar nature and translations. Permission to publish illustrations must be obtained by the author before submission. Any acknowledgements should be included in the figure captions.