Expert's Consensus on Payment Performance Attributes in theConstruction Industry

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ABSTRACT : This paper aims to establish a status quo on expert consensus on payment performance attributed for public organizations in Nigerian Construction Industry. The research adopted Delphi technique in data collection. A list of 25 attributes obtained from payment practice/process was administered to the experts for consensus evaluation in three number of rounds. Wilcoxon non-parametric rank test was used to test the consensus. Based on the decision rule of ≥70% score for attribute retentions. The finding indicates that only earthquake is dropped among the twenty-five attributes. The remaining of twenty-four were identified by experts as payment performance attribute prevalence in Nigerian construction industry. The paper describes the empirical study that used Delphi methodology to establish the paymaster's payment performance attributes for the construction industry. The paymaster's payment performance attributes contribute to the client's prompt payments performance or late payment performance. The attributes are useful for improving Client payment performance in the construction industry.
KEYWORDS: Nigerian Construction Industry, Payment, Payment Performance Attribute.

I.   INTRODUCTION

The payment attributes are the drivers in the payment performance outcomes and it links the various payment processes that bring about to positive payment performance (prompt payment) or negative payment performance (late payment), which are related to the following i) contractually related matters, ii) construction industry related matters, iii) paymasters related matters, iv) contractors related matters and v) external related matters. Payment practice is the process and procedure of making payment to the contractors, which is guided by the standard forms of contract, and the process is carried out within a professional code of conducts. In Nigeria, the Joint Contract Tribunal 1998 (JCT'98) Nigerian version and Standard Form of Building Contract (SFBC 1990) is widely used in both public and private organization as guide for payment practice in Nigeria.

II.   PAYMENT

Payment is defined as monetary consideration given by clients to the contractors for value of work done, materials or goods contained in the contract. The payment process in the construction industry is a fragment, due to the number of procurement process employed in the industry, all the method is to use to meet the paymaster's requirement or obligation [1].. In the recent study, [2] among others, classified construction procurement methods into two broad categories as traditional procurement method and non-conventional procurement method. However, all the two methods are used in Nigeria. The widely used method in Nigeria is traditional method of procurement [3] The payment issue is continuously generating problem in the industry the subcontractors, suppliers, and every person in the entire construction value suffered [4].[2], [3],[4],[5]. Due to the lack of consensus on payment practice and identifiable attributes that can be used to assess the payment performance in the construction industri.

III.   PAYMENT PERFORMANCE ATTRIBUTES

Payment performance attributes are the elements or attributes that affect the process and procedure of making payment to the contractors. Moreover, the attributes are the drivers of the payment performance outcomes, and it

links the various payment processes that lead to positive or negative performance. The payment performance attributes are grouped into criteria and subcreteria as follows:

a)   Contractually related matters.
i)   Regular payment
ii) Payment according to contract
iii) Setting off sum certified
iv) Contractors Right to Payment
v)   Certified Value Retained
b)   Paymasters related matters.
i)   Certification of work
ii) Supervision
iii) Processing files for Payment
iv) Selective Payment
v)   Paymaster Certification
c)   Contractors related matters.
i)   Contractors Claims
ii) Compliance to Design
iii) Compliance to Specification
iv) Time of Delivery
v)   Contractors Satisfaction
d)   Construction related matters.
i)   Credit Payment
ii) Project Duration
iii) Amount of Payment
iv) Cost Overrun
v)   Time Overrun
e)   External related matters.
i)   War or Civil Disturbance
ii) Flooding
iii) Earthquake
iv) Change of Government Policies
v)   Economic Meltdown.

It is guided by the standard forms of contract. In Nigeria, the Joint Contract Tribunal JCT 98 Nigerian versión and standard form of building contract (SFBC 1990) are widely used in both public and prívate organización as the benchmark for the payment practice and procedure [6].

IV. PAYMENT IN CONSTRUCTION

The payment to supply chain is intended for the industry to improve performance. This can be achieved if the appropriate payment instrument is recognized by the relevant project members in a transparent and negotiated way [7].Payment by progress is the habituated technique of payment within the construction industry. The standard forms for construction contracts provide expressed payment clause stated progress payment to contractors and subcontractors. As a general rule in traditional procurement method, payments are specified to be monthly [8]. The construction contract mostly financed through progressive payment. There are two types Payments in construction projects under traditional payment system, the interim payment and final Payment. The interim certificate, states the amount due to the contractor from the employer. The final certificate is a statement, as to the sum of money finally due between the employer and contractors [9].

V. METHODOLOGY

One of the purposes of exploratory research is the discovery or identification of variables [10]. The Delphi method is particularly useful when objective data are unattainable; there is a lack of empirical evidence [11].The paper utilized a Delphi quantitative method. Linestone and Turoff (2002) specify five essential requirements necessary for the success of the Delphi method: a) A purposefully selected panel of participants (experts) to inform the research, (b) Anonymity of the panel participants, (c) Multiple reiterative rounds of questioning, (d) Controlled feedback between rounds, and (e) Convergence to consensus. The questionnaire consists of 25 different types of payment practices attributes for the expert to give their opinion using a 9-point likert type scale in three number of rounds. The purpose of Round 1 inquiry is to explore or deduce more

information on the list of payment practices attribute as shown in Table 1.0 submitted to the experts for inclusion of any addition attributes. The Round 1 transmitted to Round 2 inquiry. The objectives of the Round 2 inquiry are to (a) provide the participants with sufficient feedback from the first round to allow them to comprehend the positions of the other participants; (b) obtain each participant's quantifiable agreement, or disagreement, with payment practices attributed that should remain on the list; and (c) obtain quantifiable decisions from each participant about how agreed with each of the payment practices attribute. The Round 3 analysis, however, provided the opportunity to quantitatively test for consensus, the desired outcome of the Delphi methodology. Wilcoxon non-parametric rank test was used for testing the consensus, and the consensus is occurring when the stability of the dispersion around the media, is determined.

The following hypotheses were formulated to guide the study.

H0: The median of different between round one and round two equal zero.

H1: The median of different between round one and round two, not equal zero

Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The median of differences between Round_2_Public and Round_3_Public equals 0.	Related-Samples Wilcoxon Signed Rank Test	.638	Retain the null hypothesis.

Asymptotic significances are displayed. The significance level is .05.

Table 1 shows the result on the payment performance attributes for public clients as agreed by the participant of the Delphi round. Upon applying the decision rule to these data, only one out of the 25 payment performance attributes were dropped from continued evaluation for not meeting the minimum of 70% being set as the decision rule.

Table 1: Showing Payment Performance Attributes Result Evaluated by Delphi inquiry

S/N	Payment Practices (General)	N	Mean	Median	SD	IQR	6 - 9%	Action
A	**Legal and Contractual Matters**							
	Regular Payment	24	6.58	7.00	2.26	2	83.30	Retain
	Payment according to contract	24	7.42	8.00	1.56	1	91.07	Retain
	Setting off sum certified	24	6.54	7.00	1.87	3	75.00	Retain
	Contractors Right to Payment	24	6.88	7.00	1.96	2	87.50	Retain
	Certified Value Retained	24	6.83	7.50	2.12	2	87.50	Retain
B	**Paymaster Related Matters**							
	Certification of work	24	8.13	8	0.99	2	100.00	Retain
	Supervision	24	7.83	8	1.09	2	95.80	Retain
	Processing files for Payment	24	7.13	7	1.83	1	87.50	Retain
	Selective Payment	24	6.08	6	1.89	3	71.00	Retain
	Paymaster Certification	24	7.38	8	1.35	1	91.70	Retain
C	**Contractors Related Matters**							
	Contractors Claims	24	6.83	7	1.52	2	83.30	Retain
	Compliance to Design	24	7.42	8	1.64	1	95.80	Retain
	Compliance to Specification	24	7.33	8	1.63	1	95.80	Retain
	Time of Delivery	24	7	7	1.38	2	87.50	Retain
	Contractors Satisfaction	24	7	7	1.82	3	83.30	Retain
D	**Construction Industry Related Matters**							
	Credit Payment	24	7.17	8	1.55	2	83.30	Retain
	Project Duration	24	7.17	7	1.40	2	91.70	Retain
	Amount of Payment	24	7.08	7	1.67	2	91.70	Retain
	Cost Overrun	24	7.25	8	1.62	2	91.70	Retain
	Time Overrun	24	7.13	8	1.70	2	91.70	Retain
E	**External Related Matters**							
	War or Civil Disturbance	24	6.88	7	1.75	2	83.30	Retain
	Flooding	24	6.67	7	1.47	2	87.50	Retain
	Earthquake	24	3.38	2.5	2.20	4	20.80	Drop
	Change of Government Policies	24	7.46	8	1.67	2	91.70	Retain
	Economic Meltdown	24	7.29	8	1.65	2	79.20	Retain

VI. RESULTS AND DISCUSSIONS

This study utilized a Delphi methodology in contrast to traditional quantitative studies. The Delphi questions consist of 25 different types of payment practices attributes for the expert to gives their opinion using a 9-point liker scale in three number of rounds. The decision rule of ≥70% score of agreement and above by experts is retained and below was dropped and the result shows that only one item was dropped and upon applying the decision rules the following   attributes were retained Regular Payment(83.30%), Payment according to contract (91.07%), Setting off Sum Certified (75.00%), Contractors Right to Payment (87.50%), Certified Value Retained (87.50%), Certification of work (100.00%), Supervision (95.80%), Processing files for Payment (87.50%), Selective Payment (71.00%), Paymaster Certification (91.70%), Contractors Claims(83.30%), Compliance to Design (95.80%), Compliance to Specification (95.80%), Time of Delivery(87.50%) ,Contractors Satisfaction (83.30%), Credit Payment (83.30%), Project Duration(91.70%), Amount of Payment (91.70%), Cost Overrun (91.70%), Time Overrun (91.70%) , War or Civil Disturbance (83.30%), Flooding (871.50%), Change of government policies (91.70%) and Economic Meltdown (79.20%). The Earthquake has scores of (20.80%) and is dropped.

VII.CONCLUSIONS & RECOMMENDATIONS

This paper has *determined* expert consensus on construction industry payment practice attributes and the result shows that only Earthquake was dropped. And the Regular Payment, Payment according to contract, Setting off Sum Certified, Contractors Right to Payment, Certified Value Retained, Certification of work, Supervision, Processing files for Payment, Selective Payment, Paymaster Certification, Contractors Claims, Compliance to Design, Compliance to Specification, Time of Delivery ,Contractors Satisfaction, Credit Payment, Project Duration, Amount of Payment, Cost Overrun, Time Overrun , War or Civil Disturbance, Flooding, Change of government policies, and Economic Meltdown were retained which unanimously. agreed by expert as the payment performance attributes in construction industry. The result of this study can used to describe the employer's payment performance in the construction industry. the finding of the study can also be replicated in another country with a large sample to revalidate the study.

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