

# Evaluation of Building Project Procurement Routes in Ekiti State-Nigeria

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------ABSTRACT------

The research work sought to evaluate the different procurement routes used in Ekiti State. A total number Fifty (50) well-structured questionnaire was administered to professionals in the built environment and the entire fifty were retrieved. The study measures different procurement routes among construction practitioners within the state as identified by past researchers, factors influencing choice of various procurement route was also identified. Level of performance of the identified procurement routes in descending order was found to be Traditional, Public private partnership, and Construction management. The study concluded that the Traditional method was mostly adopted in Ekiti State and also suggested the use of alternative procurement routes wherever the Traditional route proves unsatisfactorily.

KEYWORD: Procurement, Building Projects, Evaluation, Procurement Routes

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Date of Submission: 05-05-2018

Date of acceptance: 21-05-2018

## **I** INTRODUCTION

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Procurement is essentially a series of considered risk. Each method has individual strength and weaknesses, which must be carefully calculated by client and contractor or industry alike. There are number of different type of procurement system available for client to select each different type of procurement(Traditional, Design and build, Construction management, Design and construct contract, Management contract, Design and management contract, Private finance initiative (PFI), Partnering, Alliancing, Joint venture, New engineering contract) as its own advocate and inherent strengths and weaknesses. Chan, (2007) define Construction Procurement System as the system that represent the organizational structure adopted by client for the implementation of project process and eventual operation of the project. On other hand, it is a comprehensive process by which designers, contractors and various types of consultants provide service for design and construction to deliver complete projectto the client.

Numerous types of construction procurement system have been witnessed for delivery project in the last few decades. The most common types include, Traditional method (Design Bid Build approach), Design and build (DB), Management contracting, construction management, project finance and partnering, they in term of allocation of responsibilities, activities sequencing, process and procedure and organizational approach in project delivery. Tools based on the valuations of the decision maker and already defined relative values of properties for different procurement methods have been developed to assist the owner in the selection of a procurement method, see e.g. Skitmore & Marsden, (1988) and Chan, (1995). These methods assume equilibrium between demand and supply, which means that up till now it has not been possible to take into account the change in the operating environment and its possible impact on the effectiveness of the chosen procurement route.

## II LITERATURE REVIEW

Procurement is a key factor in attaining client satisfaction and project success. Irani, Cheng, and Li, (2002) and Rwelamila, (2010).International Conference of Socio-economic Researchers ICSR 2016 SERBIA Conference Proceedings affirmed that procurement as "an organizational system that assigns specific responsibilities and authorities to people and organizations, and specifies how different elements of a construction project would relate". There are various construction procurement methods which hail from the need to develop strategies that will meet the clients need in different circumstances (Babatunde, Opawole, and Ujaddugbe, 2010). These requirements varies from the level of client's involvement, management of risks, funding arrangements, payment regimes, type of contracts to be used, the contractor's financial commitment and who are the Clients (Rwelamila, 2010).

# III PROCUREMENT METHODS

The procurement methods as revealed by literature are: Traditional, Design and Build, Build Operate-Transfer, Management Contracting, Construction Management, Labor Only, Direct Labor, Partnering, Public Private Partnerships, Strategic Alliances, Private Finance Initiatives, Collaborative Agreements, Concessions etc. (Latham, 1994; Odusami and Bamisile, 1997; Turner, 2003; Mathonsi and Thwala 2012).

Research have shown that Nigerian Construction Industry adopts all the various procurement methods in one form or another (Idoro, 2012; Ikediashi, Mendie, Achuenu and Oladokun, 2010; Ibrahim, 2008; Ojo, Adeyemi and Fagbenle, 2006). Even though the most prominent is the traditional method adopts separation of the design and construction functions in project procurement.

In last decades, several researchers within the multidimensional construct of project delivery have proposed different criteria or indicators based on empirical research, for example, Bassioni et al., 2004; Jin et al., 2007; Cheung et al., 2004) agrees that project delivery can be measured and evaluated using a large number of performance indicators or criteria but time, cost and quality appear to be the three commonly preferred performance evaluation dimensions. While some focused on using these measures as strategic weapons, others emphasized the proper delineation of the measures and groupings into classes that will make tracking and management reasonable.

# IV PROCUREMENT METHODS AND THEIR INFLUENCE ON PROJECT DELIVERY Traditional Procurement Method (Dbb)

Traditional procurement is the oldest form of construction procurement. It is considered as a popular form of separated-and-cooperative procurement method. It can be defined as a project delivery strategy in which two separate organizations (design team and contractor) do carry out all project processes and are individually responsible directly to the client.

# The circumstances in which this method is generally considered appropriate include the following:

- The service of a designer has already been procured
- The designer is experienced enough to oversee both the design and construction
- The design is substantially complete by the time the contractor is selected
- Contractor is selected on the basis of price with a general acceptance that the price may be wrong
- It is important for client to use a contract form with fair and familiar distribution of risk
- When neither the employer or his advisers raise this as an issue
- Full tender documentation exist to ensure price certainty
- The bill of quantities can be used for valuing variations
- Client desires competitive tendering
- Scope of work is clear and well defined to facilitate detailed design

# **DESIGN AND BUILD (DB)**

This organization is responsible for the design, supervision and construction services of the project. In Design-build, it is also possible to fix the costs of an entire building project quickly which should be of significance to the public sector especially in periods of economic boom and/or inflation. Nykänen (1997) again, considers the involvement of the contractor in design necessary for successful project implementation. Nykänen says that it is difficult to see any other benefit to be gained from involving the contractor at the latest possible stage than that it may allow the owner to obtain an even lower offer from the markets in a downturn. Pernu, (1989, 1998) also ponders the significance of the time of concluding a contract from the viewpoint of the risk of changing cost levels, willingness to submit tenders, and reserves for risks, but the conclusions are ambiguous from the viewpoint of this study. Pernu (1998) observered that the owner's shortage of staff – perhaps due to a boom – when a contract including design allows transferring project management tasks to the contractor. Overall, the message is clear: Design-build and Management-type implementation are, above all, procurement methods for times of expansion whereas design by the owner is the choice especially in an economic downturn.

## The circumstances in which this approach is generally considered appropriate include the following:

- Client not familiar with the construction process
- Project is technically complexity
- There is a low likelihood of variations to the project
- Client desires a single point of responsibility

- The employer desires a quick start to work on site
- Client desires to prioritize either time, quality, price or value for money etc.
- Client desires an opportunity for effective direct communication/interaction with contractors
- Client desires for an integration of the design and construction process

#### DESIGN AND CONSTRUCT CONTRACT

The client separately employs the advisor to arrange for an architect in the case of building contracts or a civil engineer to produce scope drawings generally relating to specific functional or essential aesthetic details, and specifically a specification fully describing the design. The contractors there after augments the drawings with their own working drawings and secures all statutory approvals including those needed from the advisor.

#### CONSTRUCTION MANAGEMENT

The construction manager is appointed early to provide a planning, management and co-ordination function. Since the actual orders with the various works contractors are with the client, the construction carries virtually no risk. While in principle all types of firm competent to manage construction projects are acceptable, actual practice as generally demonstrated experience programming specialists with solid systems management skills are then favoured choice. The construction management firm is not allowed to carry out any construction itself, but takes responsibility for advising the designer on build ability, including drawing up suitable work package contracts, arranging procurement contracts and managing the bidding phases of the works contracts.

#### THE MANAGEMENT CONTRACT

Many clients are unhappy at bearing the risk of many works contracts needed on the large and complex projects normally associated with construction management. As a consequence there has been a trend towards engaging a single contractor early to provide planning, management and co-ordination of construction who then subcontractors the work in the normal manner. However like construction management the principal contractor is barred from varying out any construction work itself, although on some projects common items for sub-contractors, e.g. scaffolds, tower crane and access roads are provided. The management contractor obtains a fee for performing similar duties to the construction manager, but carries more risk. The system is finding favor with clients as experienced contractors increasingly compete for contracts based on their reputation of getting work completed on time, to cost and of good quality.

## DESIGN AND MANAGEMENT CONTRACT

As a natural development from these new systems clients have invite prime/principal contractors to take responsibility for also managing the design phase. The contractual arrangements are shown below with all elements sub-let by the contractor. The initial scope design is often executed by the clients own staff or an independent design firm, and forms the basis for inviting tenders.

The contractor offering the lowest scheme for full design, management and construction is normally selected but reputation, quality of service and management fee charged are also important considerations. The system offers similar advantages to design and construct contract and so potentially facilitates improved control of the design and procurement processes. However, in contrast, both design and construction are entirely sub-let by D\$M contractor to subcontractor and suppliers, contractual responsibilities are therefore more visible and so less likely to become enmeshed in the management designers/contractors commercial operations.

# THE PRIVATE FINANCE INITIATIVE (PFI)

Private financing arrangements are fairly familiar to the construction industry. For example in work for foreign governments, where financiers such as the major banks in conjunction with developers, including sometimes contractors themselves, commonly undertake DBFO, BOOT and similar activities. The major difference in the latest UK PFI lies in the sharing of risk between government and the developer/operator, with only those projects having a given share of risk held by the developer securing approval. The arguments is that unless government is free of the majority risk then the project should be counted as an addition to the Public Sector Borrowing requirement and hence needs to comply with normal/traditional procurement practices and approvals.

## **PFI** principles

The scheme is usually initiated by central government, one of its agencies or local government dependent on tax payer funds and normally requires the private developer to design, finance, construct and operate the facility over a stipulated period and be paid a rental charge for the services provided. Consequently rigorous selection procedures and financial evaluation using net present value techniques have to be adopted to ensure that the right level of risk is shared by the parties.

In this respect the first stage requires the client to establish a sound specification for the intended project clearly defining the scope of work to be undertaken and output needed, in amount and quality. Secondly the degree of risk as to be assessed, for example the procedures in the event of the private developer at some stage defaulting, thereafter establishing the bidding process and developer selection criteria.

## PARTNERING

Partnering is normally regarded as the strategic and long-term arrangements whereby a partner e.g. contractor is selected by a client/advisor for a series of projects. The aims of such arrangements include lowering costs and improving efficiency, thereby reducing delays and ensuring completion of projects on time, to budget and quality, although single project arrangements increasingly are also being included in the terminology.

Notably, partnering involves the client and their advisor in selecting a particular contractor, negotiating a price for the envisioned project, establishing the programs and agreeing terms and conditions of contract, but with the main objectives aimed at generating a spirit of co-operation. In particular the contractor is encouraged to put issues to the client at the outset and continue with open attitudes throughout the contract. It is hope that problems can be foreseen and mutually resolved i.e. claims, disputes, etc. and eliminated if possible, however the client may further extend influence by requiring maintenance of key performance levels during the work phase expecting the contractor to take appropriate action if standards begin to stray of target.

## ALLIANCING

Partners, both design collaborators and contractors having demonstrated full commitment in terms of previous behavioral attitudes, are invited to co-operate in developing new schemes before even sanction for final approval by the client's main board of directors may have been achieved for the scheme to go ahead. The client's project team, designers and contractors jointly prepare target cost coupled to a risk/award structure based on the final outcome, the implication being that future opportunities will only be forthcoming if the final products meet the client's satisfaction.

## JOINT VENTURE

The unusual step beyond partnering is the joint venture contract between a major client and providers of the facility, perhaps where co-operation is vital, e.g. dealing with a major construction failure. A 51% majority shareholding in the joint company or undertaking provides controlling ownership for one of the partners but depending upon circumstances other proportions are possible. Irrespectively great care in evaluating the risks and levels of commitments of each, together with establishing sound business and management relations would be essential otherwise conflicts could eventually surface concerning strategy, decision making and management style.

Stage	Task	Sequence of tasks
Initiation	Product identification	
Preliminary	Feasibility studies, strategic and finance planning	↑ <b></b>
Design and development	Engineering and costing	
Detailed design	Detailed engineering	
Contract and procurement	Procurement	
Manufacture and construction	Manufacture and construction	
Commissioning	Commissioning	
Operation and maintenance	Operation and maintenance	in project
	Operation and maintenance	concert or trans- locitie to proceed or Decision to proceed or Final scheme and shift Place contacts Connects on Connects of Connects of Connec

#### CHALLENGES OF CONSTRUCTION PROCUREMENT IN NIGERIA

Inuwa, Wanyona and Diang'a (2014) identified 22 factors plaguing the indigenous contractors in the Nigerian Construction Industry in their procurement efforts and ranked them. The categorization is after an intensive literature search, questionnaire administration and interview sessions in the northern states.

The factors that ranked 1st to 5th are lateness in honoring payment certificates, variations, technical incompetence, design deficiencies and material shortage. The issue of funding and prompt payment has continually been a challenge in the procurement of infrastructure in developing nations as opposed to developed nations where funding for infrastructure is available before the procurement process is initiated. Variation and design deficiencies introduce changes to projects whichsometimes cause delays and cost increment. The impact may be mitigated by the procurement method adopted and the payment regime. Also, Mohammad, Adamu and Ladi (2015) acknowledge that the problems affecting construction procurement in Nigeria are kidnappings, vandalism, civil unrests, and other factors that have increased the risks associated with the construction process. The study further identified that lack of the knowledge and working processes of the Public Procurement Act, refusal to comply by some individuals, political influence, administrative bottlenecks, and knowledge gap in terms of the variety of procurement options available are common challenges. Musanzikwa, (2013) identified the following as the challenges of public procurement in Zimbabwe; Delays in project implementation, corruption, indigenization policy, incompetence, inadequate market enquiry and political influence and proposed that these challenges can be mitigated by adoption of professional procurement practice, training of procurement officers and staff, transparency and the decentralization of the process.



- When the general contractor is selected by price bid, the activity sequence is linear and is typically referred to as design-bid-build project delivery.
- When the constructor is selected by a negotiated basis, the general contractor usually enters the project nearly at the same time as the designer and provides input during the design process. The general contractor eventually negotiates a firm contract with the owner. This sequence also allows for overlap of design and construction. This system is typically referred to as negotiated team project delivery.
- When a construction management firm is used in lieu of a general contractor, this system is typically referred to as construction management at risk project delivery. The delivery sequence is similar to that of the negotiated team delivery system.





#### Source: Atkinson, (1999)

In some cases, the construction manager is hired first and assists the owner in hiring the designer. In other cases, the construction manager is hired during or after design. The owner either contracts for construction with a general contractor or, in most cases, with several trade contractors. In the latter case, the construction manager coordinates the construction activities.

Procurement routes	Most	Less	Familiar	Not familiar		RII	Rank
Trocurement routes	familiar	familiar	Tunnur	i tot iuninui	Mean		
Traditional contract (TC)	15	12	12	11	32	0.21375	9
Single-stage design and build (SSDB)	14	10	12	14	31	0.155	1
Two-stage design and build (TSDB)	12	21	15	2	35.75	0.17875	5
Management contract (MC)	14	13	11	12	32.25	0.16125	3
Construction management method (CM)	31	15	3	1	44	0.22	10
Project management method (PM)	18	21	9	2	38.75	0.19375	7
Frame work (FW)	32	9	7	2	42.75	0.16	2
Partnering (P)	18	15	16	1	37.5	0.1875	6
Public private partnership (PPP)	21	11	5	13	35	0.175	4
Public finance initiative (PFI)	21	23	3	3	40.5	0.2025	8

#### DATA PRESENTATION AND DISCUSSION OF RESULTS Table 1: Level of Familiarity with the different procurement routes

## Source: Researcher's field survey, (2017)

From the analysis carried out using Relative Importance Index to determine the level of familiarity of respondents with the procurement routes. It is observed in table 4.10 above that Construction management is the most ranked followed by the Traditional contract, then Public finance initiative, Project management method, Partnering, Two-stage design and build, Public private partnership, Management contract, Frame work while the least procurement route is theSingle-stage design and build as response to the above most familiar, less familiar, familiar and not familiar in the questionnaire.

The International Journal of Engineering and Science (IJES) || Volume || 7 || Issue || 5 Ver. II || Pages || PP 21-29 || 2018 || ISSN (e): 2319 – 1813 ISSN (p): 23-19 – 1805



Factors Procurement routes	тс	SSDB	TSDB	мс	СМ	РМ	FW	Р	PPP	PFI	Mean	RII	Rank
Project completion at Estimated Time	12	3	12	3	3	4	5	4	2	2	34	0.068	19
Quality assurance	2	5	11	6	9	7	5	3	1	1	31.6	0.0632	17
Cheapest cost	3	3	2	9	7	7	6	5	4	4	26.4	0.0528	7
Financial arrangement	4	2	4	7	10	8	2	4	5	4	27.3	0.0546	10.5
High degree of control	2	5	9	5	4	3	2	4	7	9	25.4	0.0508	1.5
Complexity of design	3	6	4	3	12	4	2	4	8	4	26.9	0.0538	12
Consultancy service	8	1	4	6	9	5	8	3	2	4	29.1	0.0582	14
Technical complexity of construction	1	2	2	9	9	9	8	4	4	2	26	0.052	4
Availability of information at project inception	2	4	7	4	7	5	6	7	4	4	26.4	0.0528	7
Risk avoidance	3	6	9	2	4	6	7	2	4	7	27.3	0.0546	10.5
Client organization	5	5	9	6	2	6	7	3	5	2	30	0.06	15.5
Little client experience available	6	9	4	2	4	9	6	3	4	3	30	0.06	15.5
Smaller project	10	4	7	3	2	5	7	2	4	6	29.8	0.0596	
Larger project	3	4	6	8	3	6	4	7	8	1	27.2	0.0544	9
Technically complex project	9	10	1	9	2	3	4	5	3	4	31.9	0.0638	18
Firm price at feasibility stage	6	4	7	3	2	5	7	2	4	10	26.2	0.0524	5
Completion on time	2	4	7	4	7	5	3	7	5	4	25.4	0.0508	1.5
Built to tender/budget	2	4	7	4	7	5	6	7	4	4	26.4	0.0528	7
Good quality result	2	2	7	4	5	5	6	7	3	9	23.7	0.0474	1
Low incidence of variations/changes	4	4	7	4	7	8	2	6	4	4	28	0.056	13

#### Table2: Factors Influencing Selection of a Particular Procurement Route.

# Source: Researcher's field survey, (2017)

From the above analysis using Relative Importance Index to identify various procurement routes in construction industry as applicable in Ado Ekiti. It also to identify factors influencing selection of a particular procurement route, to determine the level of performance of the procurement route and to determine if the use of alternative procurement route could be used as mitigation against project challenges, it is observed that Good quality result is the most rated factor influencing selection of a particular procurement route with mean value of 23.7, followed by completion of time and high degree of control with same mean value of 25.4 while the least factor is project completion at estimated time.

## Table 3: Performance level of Construction Project with the different procurement routes

Procurement routes	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	Mean	RII	Rank
Traditional contract (TC)	13	15	9	7	6	40.2	0.1608	10
Single-stage design and build (SSDB)	12	14	10	11	3	34.2	0.1368	5.5
Two-stage design and build (TSDB)	9	10	22	4	5	32.8	0.1312	3
Management contract (MC)	21	12	15	1	1	34.4	0.1376	7
Construction management method (CM)	17	13	8	9	3	36.4	0.1456	8
Project management method (PM)	6	14	10	11	9	29.4	0.1176	1
Frame work (FW)	12	12	12	13	1	34.2	0.1368	5.5
Partnering (P)	11	9	19	4	7	32.6	0.1304	2
Public private partnership (PPP)	17	12	11	7	3	36.6	0.1464	9
Public finance initiative (PFI)	14	12	11	6	7	34	0.136	4

## Source: Researcher's field survey, (2017)

From the analysis carried out using Relative Importance Index to identify various procurement routes in construction industry as discussed in descending order. It can be observed from the above table that Traditional contract (TC) has the highest rank in the level of performance of construction project having a mean value of 40.2 and RII value of 0.1608 with the different procurement routes followed by partnering (P), Two-stage design and build (TSDB), Public finance initiative (PFI),frame work and single stage design and build have the same level of performance of construction project with different procurement route under review while Management contract (MC), construction management method while the least level of performance of construction project with the different procurement routes as shown on the table above.

Table 4: Alternative Procurement route that could be used as mitigation against project challenges

Approach	Frequency	Percentage
Alternative procurement strategy	21	42
Appropriate tendering method	16	32
Appropriate contractual procedure based on contractual document	13	26
Total	50	100

## Source: Researcher's field survey, (2017)

The major project challenges that mitigated by adopting the following approach is Alternative procurement strategy followed by appropriate tending method while the least challenges are appropriate contractual procedure based on contractual document.

## CONCLUSION

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The results from the variants give a general indication that both Traditional procurement and Construction management methods are currently embraced in Ekiti State. The results further indicate that the procurement method use is still much of variants of Traditional method. This is due to long age existence of Traditional procurement systems. The choice of variant of Traditional procurement method is made in order of consideration of project completion at estimated cost, estimated time and availability of information at project inception. In making choice of the variant of the Construction management procurement method, minimization of design time are considered as major factors indicating that more factors are considered in making choice of variants of Construction management method than the variants of Traditional procurement in Ekiti State. From the findings, it became obvious that the procurement method adopted by the construction practitioners in Ekiti state was Traditional method as supported by Oluwole, (2015). Based on the design, bid and build which allows contractors that feel competent to bid for a project in the in competitive and free atmosphere so as to achieve efficient delivery of building project.

#### RECOMMENDATION

Factors such as; Project completion at estimated time, Quality assurance and Availability of information at project inception should be carefully considered when choosing the Traditional procurement route.

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