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COLLABORATION AMONG INTERNAL STAKEHOLDERS OF CONSTRUCTION PROJECTS IN NIGERIA

Jurbe Joseph Molwus[1], John Iorkumbur and Yohana Daniel Izam

Department of Building, Faculty of Environmental Sciences, University of Jos, Jos, Nigeria

ABSTRACT

Purpose: Construction project delivery in Nigeria, like many developing countries, remains challenging in terms of collaborative effort. It is still seen to be characterised by adversarial relationships in work places thereby manifesting unsatisfactory work quality, errors and omissions in designs and other contract documents, wastages and attendant high costs, and untimely completion. Efforts have been made in understanding the practices and barriers of collaboration. This research investigated internal stakeholder participation and involvement in decision making, and evaluated the degree of collaboration in terms of prevalent collaborative elements, efforts and strategies in construction industry in Nigeria.

Design/methodology/approach: Questionnaire Survey was used to collect data for the study from the six cities representing the six geopolitical Zones of Nigeria as cluster sampling drawn from internal stakeholders: Client (or client representative), builders, engineers, architects, quantity surveyors, land surveyors and skilled technicians. Simple percentages and mean were used from the SPSS as tools for analyses.

Findings: It was found that collaboration takes place mostly at construction phase instead of all phases; skilled technicians (with Mean Score of 4.30) and client/client representative (with Mean Score of 4.26) are mostly involved in decision making instead of holistic involvement.

Originality/value: The understanding of what the issues are with Stakeholder collaboration in Nigeria has been established and adjudged to be generally on the average. It is recommended that level of internal stakeholder involvement should be encouraged by all stakeholders at all phases of construction and the key elements of collaboration should be prioritised alongside collaborative efforts and strategies for less adversarial relationships and improved productivity in construction industry in Nigeria.

Keywords: Collaboration; internal stakeholders; construction projects; Nigeria; collaborative elements.

[1]jurbenang@yahoo.com

1. INTRODUCTION

The construction industry work processes that are dependent on effective collaboration among internal stakeholders for high productivity, are seen to be increasingly compromised by internal stakeholders. The quest for collaboration is therefore intensified among stakeholders with focus on ingredients of collaboration to ensure best practices in a team-based and interdisciplinary project strategies (Rowland, 2009). Where collaboration is lacking, effective project management remains a myth. Stakeholder collaboration is thus generally perceived to be the bedrock for all emerging management approaches (Mossman, 2013). The increased need for harmonisation of individualistic efforts is becoming a concern in the construction industry particularly in Nigeria as less attention is given to the components of collaboration. Lu, Zang, and Rowlinson (2013) emphasized that the quest for collaboration in this circumstance must take into cognisance, the independence of members, unifying purpose, voluntary links, multiple leaders and integrated levels which are perceived to be the fundamentals of effective collaboration. Collaboration can therefore be appreciated better in understanding collaborative thinking, flexibility, adaptability, acceptance, contextual roles and social changes of the construction industry. Collaboration in the construction industry is is thereby necessitated by the industry's complexity, uniqueness, fragmentation, dynamism, and communication difficulties (Rotimi, 2015).

There are many definitions of collaboration, Wilkinson (2005) defined collaboration as "A creative process undertaken by multiple individuals or work groups, sharing their collective skills, expertise, understanding and knowledge (information) in an atmosphere of openness, trust, honesty and mutual respect to jointly deliver the best solution that meets their common goal." Stakeholders, being the drivers of collaborative effort, are defined as "People or groups of people that believe that they have legitimate interest, share or claims against the substantive aspects of a project (Winch, 2007). Many years of professional practice in Nigeria reveal that effective coordination of projects remains a challenge as internal stakeholders hardly agree on technical issues, power and authority. Researchers contended over the validity of the older project management tools (Ballard, 2000; Koskela & Howell, 2008; Thomsen, 2010; Mossman, 2013).

Alufohai (2012) emphasised that Building Information Modelling (BIM) which is collaboration based is becoming a great approach in the construction industry to boost project effectiveness and efficiency of project management. BIM is also seen to be drawing attention of practitioners hence bearing increasing demand by owners, construction managers, architects, engineering firms and other stakeholders (Lu, Zhang & Rowlinson, 2013; Onungwa & Uduma-Olugu, 2016; Kapogiannis & Sherratt, 2018). Another collaboration-based approach is the lean construction, which incorporates the practices of lean manufacturing (as originated by Toyota) into construction industry with emphasis on increasing value and eliminating waste (Gould & Joyce, 2014). The lean construction approaches are concerned with efficiency in productivity. Supply chain management (SCM), another advanced management approach, is also becoming popular in recent times among researchers and practitioners within the construction industry with the aim of making the construction industry more effective with increased efficiency (McDermott & Khalfan, 2006; Barratt, 2004). SCM, like the lean construction, is a managerial concept largely hinged on effective logistics and allocation of resources (Vrijhoef & Koskela, 2000). SCM system, on another hand, is purely collaborative since

it focuses on knowledge sharing, integration of activities, roles, and sharing of turf (Rowland, 2009).

Notwithstanding the fact that technology has an important role to play, experts have contended that knowledge management cannot be ensured using technology solely. Information technology (IT) alone cannot take the role of knowledge management on its own, what is often overlooked is the deployment of IT via collaborative knowledge sharing (Dave & Koskela, 2002). The distinct roles of professionals in Nigeria construction industry, outlined by Owolabi and Olatunji (2014), with less emphasis on what the issues are with collaborative effort among the stakeholders in the industry also call for concern. These distinct roles create suspicion and independent "worlds" thereby failing to promote collaboration that is generally considered pertinent for overall project performance. Darrington, Dunne and Lichtig (2010), observed that there has also been increasing concern by the Construction Users Roundtable - CURT (2004) on the need to address inadequate, poorly coordinated architectural, electrical drawings and the resulting difficulties in the field - project schedule, and cost overruns. To address these challenges, CURT (2004) advocated the use of information technology combined with changes in management structure and effective delivery processes required to deal with concerns of collaboration bordering on errors and omissions in architectural, services and construction documents. The key elements of collaboration, as summarised by Rowland (2009), include unifying purpose, independent members, voluntary links, multiple leaders and integrated levels. These elements are perceived to be the essential parameters needed for the actualisation of collaboration among internal stakeholders.

"Unifying purpose" entails shared commitment to a common goal; and this is what really drives collaboration. It is centred on understanding of common objectives; it is the glue that binds stakeholders together (Rowland, 2009). This can be seen to be created by very clearly defined and agreed goals for the purpose of collaboration which extends from abstract to concrete and specific goals and assignments. Roberts, Blundel and Dartnell (2016) considered this to mean shared vision of stakeholders which is essential in focusing on their common objective without prejudice.

"Independent members" as an element of collaboration entails that organisations, individual or collaborative entities must have the capacity to operate in isolation in the first instance. Thus, each entity retains its independence while cooperating with others on specific tasks to achieve greater and better results (Rowland, 2009). Mickan and Rodger (2000) contributed that there is a healthier coexistence among members in an organisation who operate independently than those that act as parasites as independent membership ensures give and take for a greater good.

"Voluntary links," according to Keller-Guenther and Betts (2011), becomes necessary as frequent and extensive communication is required at all times among stakeholders. According to Rowland, (2009), no one is coerced to participate. There are many crossing relationships embracing social and technological ties, but for effective collaboration to be ensured, the relationships must be voluntary (Mickan & Rodger, 2000).

"Multiple leaders" as a concept and collaborative element entails that different people in organisations should lead, depending on what needs to be done. During any given process, more than one person leads (Rowland, 2009). In this case, there are fewer bosses and more leaders who can assume leadership position when appropriate thereby promoting collaboration among internal stakeholders.

"Integrated levels" as an element of collaboration ensures the working of people on many levels within organisation and with other partner organisations in a collaborative

relationship. Here, there are groups within groups nesting internally in much collaboration without reservations and suspicion (Roberts et al., 2016).

Collaborative efforts on the other hand are concerned with the deliberate and conscious attempts by internal stakeholders aimed at realising effective collaboration. These efforts continuously increase in the course of relationship among stakeholders from the lowest to the highest level; hence collaboration is viewed as a continuum (Waibel, 2010).

This is the lowest level of relationship developed with others to basically share information for mutual benefit. It is also characterised by low level of trust, limited time of engagement and no sharing of turf (Zorich et al., 2008). At this level, there is no detailed knowledge about other counterparts (stakeholders) as individuals are merely acquainted with one another with high level of reservation (psychological insecurity). These results in making stakeholders at this level of collaboration self-protective (Pacer centre, 2004). Frey et al (2006) considered this stage to be communication centred. Rowland (2009) maintained this stage of collaboration is essentially contact based.

The next level is the wilful support of members in a relationship and obviously the second step of the continuum. Stakeholders at this level also share information and further alter their activities (stands) for mutual benefit. This level according to Pacer centre (2004) is characterised by realisation of Self-worth of stakeholders, informal agreements to work together, low level of trust, complicated decision-making processes as turf also remains a challenge to all parties.

The third level of collaborative relationship extends further from exchanging information and altering of individual activities to sharing of resources among stakeholders for mutual benefit (Zorich et al., 2008). This stage, according to Rowland (2009) is characterised by the written agreements by stakeholders for working together; stakeholders' agreement to team together and not go forward without another; sharing of human, financial and technical contributions; defined benefits and established trust; and higher amount of time, commitment and trust.

The next level towards effective collaboration after sharing of resources is enhancing each other's capacity for mutual benefit as well as achievement of common goals. The key issue here is that stakeholders are willing to learn from each other to become better at what they can do. Waibel (2010) argued that collaboration at this stage cannot be said to be at best as enhancement of each other's capacity is often looked. This level of collaborative continuum, according to Rowland (2009), should be termed effective collaboration stage and is characterised by multiplication of individual strengths since an individual in an organisation matter how good, cannot be better than the collective whole and remains the subset of the whole. Furthermore, risks, responsibilities and rewards are equally shared at this stage of collaboration (Waibel, 2010).

Effective collaboration is thus seen to be beneficial in project management. Some of the benefits include: improved communication, fewer day-to-day problems, improved work quality and methods, good managerial practices, improved supply chain, reduced project delivery time, reduced conflict among stakeholders, waste reduction, and enhanced accountability (Mossman, 2013; Zamina & Pasquire, 2012; McDermott & Khalfan, 2006). However, Tee, Davies, and Whyte (2019) found that there is difficulty in getting project participants to adopt new behaviours, such as the integrating practices leading to effective collaboration. It therefore calls for interrogation as to why we are not effectively collaborating. This paper presents an attempt at unveiling more ingredients of collaboration that are key towards enhancing collaborative efforts among internal stakeholders in construction industry in Nigeria.

2. RESEARCH METHODOLOGY

This research, considered basic collaborative ingredients including incidences of collaboration in participation and involvement of stakeholders, and the degree of elements efforts and strategies. This therefore informed the need to empirically study ingredients that pave way for non-collaborative outcomes using a postpositivist ideology. This ideology appreciates the fact that it is not good enough to assume an outcome, but to further establish what the causes and/or determinants of a given condition are (Creswell, 2014). Consequently, the prevalent errors in design, adversarial relationships, delays in project delivery and poor harmonisation of efforts call for investigation and determination of status of ingredients of collaboration. This research investigated the much talked about poor incidences of collaboration at different phases of construction, involvement of stakeholder participation and involvement in decision making in project management in Nigeria; as well as the level of collaboration among internal stakeholders in terms of elements, efforts and strategies of collaboration in Nigeria. The use of questionnaires in quantitative survey, as adopted in this research approach, is concerned with description of trends and attitudes (Creswell, 2014).

Six cities in each of the six geo-spatial zones of Nigeria were considered as the area of the study. The use of questionnaire was considered relevant for this study as it was used to describe the ingredients of collaborative practices among stakeholders in construction industry in Nigeria, a region geographically dispersed and multicultural. In this research, a face-to-face and e-mail approaches for distribution of questionnaires were deployed to obtain data for the research. These methods of data collection pay off when researchers do not have total access to all respondents, particularly when the area of study is geographically dispersed (Berg, 2007; Creswell, 2014).

The population for this research covered internal stakeholders in construction industry in Nigeria comprising employers, architects, engineers (electrical, mechanical, civil), builders, land surveyors, quantity surveyors and skilled tradesmen. The population considered is considerably large and infinite since the number of all professionals and skilled technicians in Nigeria is not categorically defined and thus given to assumptions. The sample size was drawn from internal stakeholders via cluster sampling which involves searching for targeted number of cases that meet stakeholder criteria (Jackson, 2012). The sample size comprised of 100 internal stakeholders from project sites from all the six cities Nigeria (Abuja, Kaduna, Yola, Lagos Umuahia and Port-Harcourt). Data analyses deployed the use of simple percentages and mean scores and relative importance index to obtain results from all categories of responses. In all of these, the results were presented in tables from where conclusions were drawn.

3. RESULTS AND DISCUSSION

The study sought to know the particulars of each respondent in order to justify the credibility of their responses to make valid conclusions from the study. Table 1 shows that Main Contractors recorded the highest response rate of 17%, while Suppliers recorded lowest response rate of 10%. Considering professional affiliation, the result indicates that majority of the respondents are Skilled Technicians with no professional affiliation represented by 21% while the least number of respondents are affiliated to Quantity Surveying and Engineers represented by 14% each. This implies that most internal stakeholders that man project sites are without professional affiliation. In terms of

respondents' years of experience, the result shows that the age category of 16-20 recorded the highest response in the industry, and the least being the category of less than 5-year experience represented by only 3%. This implies that every category of respondents in terms of years of experience was represented and the years of experience distribution is sufficient to provide useful information about the construction industry with respect to stakeholder collaboration.

Table 1: Background information of respondents

Variable	Frequency	Percentage	Cumulative percentage
Respondent's position in organisation			
Employer	16	16	16
Construction manager	16	16	32
Consultant	14	14	46
Main contractor	17	17	63
Subcontractor	12	12	75
Tradesman	15	15	90
Supplier	10	10	
Total	**100**	**100**	
Professional designation of Respondents			
Builder	15	15	15
Architect	16	16	31
Quantity Surveyor	14	14	45
Land surveyor	20	20	65
Engineer	14	14	79
skilled technician	21	21	100
Total	**100**	**100**	
Professional Experience of Respondents in Nigeria Construction Industry			
Less than 5 years	3	3	3
5-10 years	9	9	12
11-15 years	11	11	23
15-20 years	43	43	66
21-25 years	25	25	91
25 years and above	9	9	100
Total	**100**	**100**	
Professional status of respondents			
Non Members	21	21	21
Associate member	8	8	29
Graduate member	28	28	57
Corporate member	38	38	95
Fellow	5	5	100
Total	**79**	**79**	
Respondent's Location (City)			
Kaduna	15	15	15
Yola	15	15	30
Abuja	20	20	50
Lagos	20	20	70
Umuahia	15	15	85
Port-Harcourt	15	15	100
Total	**100**	**100**	

Pertaining to professional status of the respondents, the result reveals that corporate membership has the highest representation of 38% and the least being those with membership of fellow with only 5%. This indicates that the respondents have the required training and since professionally qualified to ensure reliability of the

conclusions from the findings. The geographical distribution of respondents shows that 20% of the respondents were drawn from Abuja (Federal capital) and Lagos each; meanwhile there was 15% representation from the remaining four cities each (Kaduna, Yola and Umuahia and Port-Harcourt). The ease with which data was collected from the two highest cities suggests that construction activities take place more at the North-central and North western Nigeria (Abuja and Lagos). The selection of cities across the country entails that the research is holistic and all-inclusive as each of the cities represents a geo-economic zone of Nigeria.

Table 2 shows that skilled workers recorded 100% participation, this is followed by Builders, Engineers, Architects and Quantity Surveyors in declining percentages of participation; while, Land Surveyors recorded the least participation with 81%. The result in Table 2 indicates that internal stakeholder participation is generally high but their involvement in actual decision-making is apparently less frequent. This negates the assumption that internal stakeholders are scarcely found or involved in project management. The participation of stakeholders which is over 80% cannot be said to be largely contributing to collaboration concerns except for micro projects with insignificantly small volume of works warranting little or no involvement of all internal stakeholder participation.

Table2: Internal stakeholder participation in construction activities in Nigeria

Stakeholder		Frequency	%	Cumulative %
Skilled technician				
	Yes	100	100	100
	No	0	0	100
	Total	100	100	
Builder				
	Yes	95	95	95
	No	5	5	100
	Total	100	100	
Engineer				
	Yes	95	95	95
	No	5	5	100
	Total	100	100	
Architect				
	Yes	91	91	91
	No	9	9	100
	Total	100	100	
Quantity Surveyor				
	Yes	86	86	86
	No	14	14	100
	Total	100	100	
Land Surveyor				
	Yes	81	81	81
	No	19	19	100
	Total	100	100	

The result presented in Table 3 reveals that the two categories of stakeholders are frequently involved in decision-making. The stakeholders frequently involved included skilled Client/ client Representative with a mean of 4.30, followed by technicians with a

mean of 4.16. Meanwhile, architects and builders are sometimes involved in decision-making on projects. Quantity surveyors, engineers and land surveyors have the least frequency in a declining order. The result indicates that, in general terms, internal stakeholders with professional recognition and the client are sometimes involved in decision-making during projects in construction industry in Nigeria. The internal stakeholders (skilled technicians and client representatives) are mostly involved in decision-making on construction projects in Nigeria as indicated in Table 3.

Table 3: Mean rating of internal stakeholder involvement in decision making in construction industry in Nigeria

Collaborative Practice	N	Mean Score	Std. Deviation	Rank
Client/Client Representative	100	4.30	.905	1
Skilled technician	100	4.16	.961	2
Architect	100	3.94	1.07	3
Builder	100	3.83	1.19	4
Quantity Surveyor	100	3.72	1.01	5
Engineer	100	3.64	1.05	6
Land Surveyor	100	3.15	1.04	7

This prevalence of unskilled workers in place of professionally recognised internal stakeholders is in agreement with what Zhang and Rowlinson (2013) found that this phenomenon is necessitated by the desire to make more profit and, perhaps, not share profit with other relevant stakeholders. The construction environment, as indicated by the result, can be more adversarial and less collaborative owing to the independent worlds created by the stakeholders.

Table 4 identified three elements of collaboration with medium prevalence rate while two have low prevalence rate. The first three elements of collaboration with medium prevalence rate are unifying purpose with mean of 3.36, independent members with mean of 3.26, and voluntary links with mean of 3.0. The last two elements of collaboration with low prevalence rate are multiple leaders with mean of 2.89, and integrated levels with mean of 2.84.

The level of collaboration investigated in terms of prevalence of elements of collaboration shows that the prevalence of elements of collaboration is generally above average but not high. This could be true as most organisations are perceived to be working without shared vision in Nigerian construction industry, with links not generally voluntary, and most members of organisations not exhibiting independent knowledge to enable them develop one another. This confirms the assertion by Rowland (2009) that the prevalence of elements of collaboration is usually not high. The respondents also indicated that different people still do not lead in most organisations which is consistent with Zamina and Pasquire (2012) that multiple leadership and Integrated levels are essential for stakeholder collaboration.

The result in Table 5 identified two collaborative efforts that are frequently made among internal stakeholders in the construction industry within the study area, while two are made less frequently. The only one out of five collaborative efforts that is frequently made is exchanging of information with mean of 4.07. The remaining four identified efforts that are

made on average by internal stakeholders include: supporting one another with mean of 3.94, altering programme activities to accommodate new ones with mean of 3.62, sharing resources among stakeholders with mean of 3.43 and integrating/enhancing each other's capacity with mean of 3.25.

The result can summarily be said to mean that collaborative efforts are sometimes made in the construction industry in Nigeria which is consistent with Tipili, Ojeba and Iliyasu (2014) that effort in effective communication (a subset of collaboration) in project delivery in Nigeria is inadequate. This could be true owing largely to the fact that there is unwillingness to change from the traditional approach of wanting to take glory alone rather than embracing the "We did it" ideology as asserted by Zorich *et al*. (2008).

Table 4: Prevalence of elements of collaboration in construction industry in Nigeria

Element of Collaboration	N	Mean Score	Std. Deviation	Rank
Unifying purpose	100	3.36	0.86	1
Independent members	100	3.26	0.85	2
Voluntary links	100	3.00	0.72	3
Multiple leaders	100	2.89	0.75	4
Integrated levels	100	2.84	0.69	5

Key: N= Number of Respondents

Table 5: Mean rating of collaborative effort in construction industry in Nigeria

Collaborative Effort	N	Mean Score	Std. Deviation	Rank
Exchanging information	100	4.07	0.71	1
Supporting	100	3.94	0.76	2
Altering activities	100	3.62	0.62	3
Sharing of resources	100	3.43	0.83	4
Integrating	100	3.25	0.80	5

Key: N= Number of Respondents

The result in Table 6 indicates that six collaboration strategies have moderate incidence while two have low incidence rate. The first six collaboration strategies with moderate incidence rate include: links between stakeholders with mean of 3.49, agreement with mean of 3.45, defined roles with mean of 3.28, trust among stakeholders with mean of 3.18, communication frequency with mean of 3.12, and stakeholder involvement with mean of 3.03. The last three collaboration strategies with low incidence include: Development of one another with mean of 2.93, equitable resource sharing with mean of 2.90, leadership training with mean of 2.87.

In general terms, collaborative strategies have moderate degree of prevalence with links between internal stakeholders just above moderate range. This is supported by Femi (2014)

that the collaborative strategies in construction industry are not at best hence adversarial relationships on construction projects remain prevalent. Even though this assertion was rather generalised, this research has revealed that the relationship-based principles upon which collaboration thrive are still at the "crawling stage" in the Nigerian construction industry.

It is, however, worthy of note that the strategies in collaboration indicated in this research directly or indirectly covers areas like collaborative planning of tasks with other internal stakeholders, collaborative review of work done with other internal stakeholders, early involvement of subcontractors in the decision-making process, understanding other tradesmen's work, and collaborative information sharing platform.

Table 6: Mean rating of collaborative strategies in construction industry in Nigeria

Collaborative strategy	N	Mean Score	Std. Deviation	Rank
Links between stakeholders	100	3.49	0.61	1
Agreement	100	3.45	0.66	2
Properly defined roles	100	3.28	0.73	3
Trust among stakeholders	100	3.18	0.66	4
Frequency of communication	100	3.17	0.60	5
Stakeholder Involvement	100	3.03	0.70	6
Development of one another	100	2.93	0.83	7
Equitable resource sharing	100	2.90	0.76	8
Leadership quality	100	2.87	0.82	9

Key: N= Number of Respondents

4. CONCLUSION AND RECOMMENDATIONS

The research investigated levels of collaboration among internal stakeholder in construction industry in Nigeria. To achieve this, the research considered internal stakeholder incidences of collaboration in participation and involvement in decision making in construction processes, and the level of collaboration in terms of elements, effort and strategies. The level of involvement is considered high but misdirected as less technically-oriented stakeholders are mostly involved. It can therefore be said that mere involvement cannot guarantee effective collaboration among internal stakeholders, but the involvement of relevant stakeholders at appropriate stages of the construction project. The obsession with the traditional method of procurement in Nigeria also suggests that overcoming ineffective collaboration in construction industry in Nigeria will remain a herculean task. The level of collaboration is generally low in terms of elements, effort and strategies and this can be said to be responsible for adversarial working relationship among the internal stakeholders.

The indication of levels of stakeholder involvement and collaboration in the Nigerian construction industry, by this study, has, apart from adding to knowledge, created awareness on the aspects that require attention the most, for effective collaboration to be engendered among internal stakeholders.

The study recommends that stakeholders in construction industry should at all times ensure holistic involvement of stakeholders, to promote collaboration. In like manner,

elements, efforts and strategies of collaboration should be stepped up throughout the project delivery phases. The study also recommends for further studies, the comparative study of collaboration in building construction industry and other aspects of the construction industry.

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