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Implementation of Risk Management in Public Private Partnership (PPP) Housing Projects in Nigeria

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ABSTRACT
This paper appraised the implementation of risk management in Public Private Partnership (PPP) housing projects in Abuja, Nigeria with the view to suggest measures for improving the practice towards effective housing provision. Data for the research was obtained through questionnaire. The data was analysed using descriptive statistic, mean rating and Kruskal-Walis test. Strong support from top management, level of company's turnover and the need to comply with set regulations were the main drivers to effective implementation of risk management while lack of information/knowledge of risk management, lack of awareness of the importance of risk management and risk management not been a priority in clients requirements were the inhibiting factors. Results of the hypotheses testing shows there is significant variations in the perceptions of respondents on both the drivers and barriers to to effective implementation of risks management in PPP housing projects. The study suggested formal and structured approach to managing risks in construction projects such as PPP housing, elaborate risk management plan be made a requirement in bidding for PPP housing projects with backing legislations to ensure its implementation and the need for top management to make conscious effort towards creating enabling environment to encourage the implementation of risk management in their organisations.
Keywords: Implementation, risk, management, PPP, housing, Nigeria

INTRODUCTION
Public Private Partnership (PPP) is gaining wider acceptance in many countries of the world as a strategy for attracting private funds to finance housing projects. However, PPP projects are prone to risks than any other form of contractual arrangement due to the number of stakeholders involved with varying interests in addition to the economic, political, social and cultural conditions where the projects are to be undertaken (El-Sayegh, 2008). These risks affect the achievement of project objective and therefore need to be adequately managed to ensure project success. Risk management connotes predicting potential risks that may be encountered by an organisation or associated with a project and to develop appropriate strategies in order to deal with the exposure to the identified risks (Berg, 2010).

The practice of risk management can be categorised into formal and informal approaches (Hudin and Hamid, 2014). Regardless of the approach adopted, implementation of risk management involves proactive planning and effective implementation of such plans with adequate monitoring mechanisms set in place to ensure the achievement of the desired objectives. Risk management implementation refers to the application of risk management process towards the management of risks that have potential impact on project objectives (Hudin and Hamid, 2014). Effective implementation of risk management enhances firm's performance, eliminates common problems in construction projects such as time and cost overrun, unsatisfactory project quality, unsafe working environment and improves quality

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and confidence of investment decision (Tumala, Leung, Mok, Burchett and Leung, 1997; Siang and Ali, 2012).

Despite this array of benefits, contractors seldom implement risk management in construction projects especially PPPs. The re-occurring nature of the risk management problem suggests that the approach to, or the implementation of risk management practice is lacking in some aspect (Harner, 2010). The decision on whether to apply risk management in construction projects is dependent upon the drivers as well as barriers to implementing risk management (Manab, Kassim and Hussein, 2010). The drivers are those factors that influence the implementation of risk management while the barriers are factors that inhibit risk management implementation. In order to promote the implementation of risk management in construction projects the driving factors must be adequately put in place while ensuring that the barriers are properly addressed. For proper implementation of risk management in construction projects such as Public Private Partnerships (PPPs), these factors must be properly identified. Few studies have been conducted on implementation of risk management in construction projects. Akintoye and McLeod (1997) examined risk analysis and management by contractors and project managers in the UK; Lee and Ali (2012) studied the implementation of risk management in the Malaysian construction industry; Hudin and Hamid (2014) provided a conceptual framework for drivers and barriers to implementation of risk management; Harner (2010) examined the barriers to effective cooperate risk management in the United States of America; Chileshe and Yirenyi-Fianko (2012) explored the perception of barriers to implementing risk assessment and management practices by construction professionals in Tanzania.

In Nigeria, studies on risks management are focused on general application of the principle in construction projects. None of the studies have specifically investigated the implementation of risk management in construction. This study therefore appraises the implementation of risk management in PPP (PPP) projects with the view to making a case for conscious effort towards improving the practice among stakeholders in PPP housing projects in Abuja, Nigeria. The study seeks to answer the following questions: How often do stakeholders implement risk management in PPP housing projects in Nigeria? What are the drivers to effective implementation of risk management in PPP housing Projects in Nigeria? What are the barriers to effective implementation of risk management in PPP housing Projects in Nigeria? How can the identified barriers be overcome to ensure effective implementation of risk management in PPP housing projects? The study objectives are to:

i. Determine the level of implementation of risk management in PPP housing projects in Abuja, Nigeria.
ii. Examine the drivers to effective implementation of risk management in PPP housing Projects in Abuja, Nigeria?
iii. Examine the barriers to effective implementation of risk management in PPP housing Projects in Abuja, Nigeria?
iv. Suggest possible strategies towards effective implementation of risk management in PPP housing projects.

Hypotheses

i. Ho: There is no significant difference in the perception of drivers to effective implementation of risk management in PPP housing Projects in Abuja, Nigeria.

H1: There is significant difference in the perception of drivers to effective implementation of risk management in PPP housing Projects in Abuja, Nigeria.

ii. Ho: There is no significant difference in the perception of barriers to effective implementation of risk management in PPP housing Projects in Abuja, Nigeria.

Ho: There is significant difference in the perception of barriers to effective implementation of risk management in PPP housing Projects in Abuja, Nigeria.

IMPLEMENTATION OF RISKS MANAGEMENT – A REVIEW

The choice of which approach to adopt by an organisation is dependent upon the drivers as well as barriers to implementing risk management (Manab, Kassim and Hussain, 2010). Drivers to implementing risk management in construction include corporate governance, compliance to regulations, advancement in technology, good business practice, shareholder requirements, improved communication, globalisation, complexity of risks and competitive advantage (Manab, Kassim and Hussin, 2010). In addition to the above listed factors, organisations can also be influenced to implement risk management by factors such as strong support from top management, encouragement from board of directors, type of firm/size/company turnover, presence of risk officer and internal auditor and pressures from external auditors (Abdullah, Zakuan, Khayon, Ariff, Bazin and Saman, 2012). Hudin and Hamid (2014) stressed that company may also implement risk management due to the acknowledgement of risk management potential benefits, emergence of new business trends, increased occurrence of risk events, and the awareness of company vulnerabilities.

There are factors that inhibit the implementation of risk management practices. Akintoye and Mcleod (2007) studied risk analysis and management in the UK and identified about 12 barriers inhabiting the practice of risk management by contractors and project managers. Some of these reasons include lack of familiarity with the techniques; time constraints, lack of information and knowledge; nature/sizes of construction projects which are seldom large enough to warrant the adoption of risk management; difficulty in seeing the benefits of implementing risk management and risks being subjective in nature which is better dealt with based on experience rather than formal risk management practice and the belief that risk analysis in commercial terms is not always viable on projects. In a similar study carried out by Chileshe and Kikwasi (2013), the most significant barriers to implementing risk management identified were awareness of risk management, lack of experience and lack of information while cost of implementation and time constraints were the least significant factors. In the cause of this study, Chileshe and Kikwasi (2013) undertake an in depth review on the barriers to implementing risk analysis and management practices as shown in Table 1. Lack of knowledge/familiarity with the technique was prominent and cut across all results of these studies. Akintoye and McLeod (2007) attributed this to lack of formal training in

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risk analysis and management techniques among construction practitioners who were the study population.

Rostami, Sommerville, Wong, & Lee (2015) conducted a thorough review of risk management in construction in the UK between 1991 and 2014; the study reported that all the challenges regarding the implementation of risk management among organisations can be grouped into "the peoples' factors", organisations' characteristics and the proccess of risk management. These findings summerise the results of most studies on the barriers to implementing risk management because all the factors identified can perfectly be classified under the above three broad groups.

Table 1: Barriers to implementing risk assessment and management practices

Researcher/ Content	Findings
Kim and Bajaj (2000) – Interviews of 13 Korean Managers of general construction firms.	Lack of familiarity with techniques; most clients and/ or owners wanted to see tangible calculations and unambiguous evidence of risks; and lack of expertise with techniques.
Lynos and Skitmore (2004) – General survey of 17 contractors, 11 consultants, 10 clients and 6 developers in Queensland (Australia) construction engineering organizations.	Lack of time; lack of familiarity with the techniques; lack of dedicated resources; lack of expertise; lack of information; difficulties in seeing the benefits; human/ organizational resistance; lack of accepted industry model for analysis; and cost effectiveness.
Liu et al (2007) – General survey of contractors attitudes in China.	Contractors' attitudes and perception; knowledge; cultural considerations; lack of experience; and lack of expertise.
Tang et al (2007) – General survey of 115 stakeholders comprising 19 clients, 30 contractors, 21 designers, 20 superintendents, 10 management organizations, 8 planning organizations and 7 others in China.	Lack of joint management mechanisms by parties; shortage of knowledge/ techniques on risk management; different recognition of risk control strategies; ineffective monitoring; lack of formal risk control strategies; no incentive for better risk management; lack of risk consciousness; inappropriate risk allocation; lack of historical data for risk trend analysis; and insufficient information on ongoing projects.
Chileshe and Yirenyi-Fianko (2012) – General survey of 34 contractors, 46 consultants and 23 clients (Public and Private) in construction projects in Ghana.	Lack of awareness; lack of experience; lack of coordination between parties involved; lack of information; availability of specialist risk management consultants; time constraints; and lack of knowledge and expertise.
Kikwasi (2011) – Interview of 55 consultants, architects and quantity surveyors in Tanzania.	Not being a priority in clients' requirements; lack of holistic approach to risk management; and reluctance of consultants to spearhead risk management process.

Hwang, Zhao and Toh (2013) – A Questionnaire survey of 15 consultants and 19 contractors in Singapore based on data collected from 668 projects.	Competition among small and medium contractors; complexity of analytical tools; lack of potential benefits; lack of budget; lack of government legislation; lack of knowledge; lack of manpower; lack of time; low profit margin; and not being economical.

Source: Chileshe and Kikwasi, 2013

METHODOLOGY

This paper appraised the implementation of risk management in PPP housing projects in Abuja, Nigeria. Questionnaire was used as an instrument for data collection. The study population comprised of registered contractors and professionals in the built environment but the sample frame consisted only of those with requisite experience in PPP housing and risk management in order to ensure the validity and reliability of information. The study adopted the non-probability purposeful sampling technique to select the study sample from the total population due to difficulty of identifying professionals with the requisite experience earlier enumerated. Purposive sampling technique is considered appropriate for selecting a sample when the researcher intends to select participants who have experience about central phenomenon or key concept being explored (Cresswell & Clark, 2007) as is the case in this study. In determining a study sample from unknown population where the data is quantitative in nature, Napierala (2014) had suggested the use of the formulae below:

$$n = \frac{Z^2 * S^2}{\delta^2}$$

where: n = minimum sample size; Z = value of distribution function denoted by 0.1 = ±10 at 90% confidence level; S = population standard deviation denoted by 1.64 at 90% confidence level and δ = acceptable standard error (1%) as set in the study. Using the above formula, the determined sample for the study was 269 respondents. Out this number, 131 questionnaires were returned, however 24 were considered invalid due to inability of the respondents to supply the required information; 107 were duly completed and used for the study. The compositions of the respondents were contractors 33, consultants 26, government officials 26 and sponsors 22. Descriptive statistic was used to analyse the level as well as the approaches to risk management which was presented in a chart. Mean rating was used to determine the most significant drivers and barriers to effective implementation of risk management in PPP housing projects. The Kruskal Wallis test was used to test whether there are significant variations in the perception of individual groups on the drivers and barriers to effective implementation of risk management in PPP housing projects.

DATA PRESENTATION ANALYSIS AND DISCUSSION

Risk Management Implementation in Public Private Partnership (PPP) Housing Projects

Risk management is a deliberate act that is consciously adopted by organisation in executing construction projects. In order to examine the practice of risk management in PPP housing projects, the respondents were questioned on whether they apply risk management principles in PPP housing projects and the approaches adopted by the various organisations (Figure 1). The results showed that, all respondents apply risk management in executing

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PPP housing projects. Risk has been referred to as any event that causes variability in achieving project objectives. To ensure successful delivery, all project managers consciously or unconsciously work towards addressing such events to prevent the occurrence of such events or cushion their effects should they occur. The respondents were further probed to indicate risk management approaches adopted by their respective organisations with the view to appreciate how project risks are been addressed in PPP housing projects (Figure 1). The results showed that 39% of the organisations have no set procedure for managing risks, 23% adopt risk management only at advisory level, 21% have risk management as mandatory while 17% adopt systematic approach in managing project risks. This indicated that majority (62%) of the construction companies neither have set guidelines for managing identified risks nor the ability to enforce these guidelines. Only 17% of the organisations actually dedicate resource to planning and implementing risk management in construction.

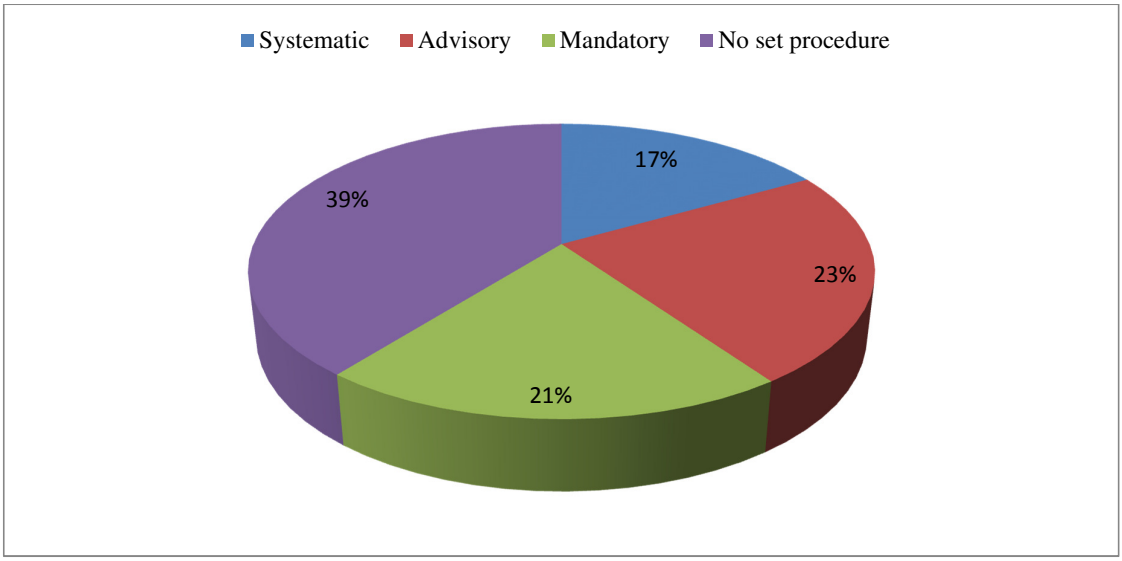

Figure 1: Approaches to Risk Management in PPP Housing Projects

Drivers to Effective Implementation of Risk Management in PPP Housing Projects in Abuja, Nigeria

The decision of whether to adopt risk management in certain projects is dependent upon the operating environment with its attendant factors which support (drivers) or inhibits (barriers) the implementation of such plans. Table 2 presents the result of data analysis with respect to drivers of effective implementation of risk management in PPP housing projects. Strong support from top management was ranked first (4.20), level of company turnover came second (4.11) and need to comply to set regulations was ranked third (3.83) among the main drivers of effective implementation of risk management in PPP housing projects (Table 2).

Hypothesis 1: Drivers to effective implementation of risks management in PPP housing projects

The results of the analysis indicate inconsistencies in the ratings by different groups of respondents (Appendix B11). For instance, Strong support from top management was

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ranked first by Consultants and Government officials; it was ranked second by Contractors while Sponsors ranked it third. Level of company turnover and Need to comply to set regulations were also rated differently by the groups. Their corresponding Kruskal-Wallis sig. P value (Table 16) were 0.000, 0.000 and 0.031 which were less than 0.05 indicating significant variation in the opinions of the respondents. Therefore, the alternative hypothesis which stated that there is significant variation in the drivers to effective implementation of risks management in PPP housing projects is accepted.

Table 2: Drivers to Effective Implementation of Risk Management in PPP Housing

Drivers	Overall Rating		Kruskal-Wallis	
	MS	Rank	Value	Remark
Strong support from top management	4.20	1	0.000	Very Significant
Level of company turnover	4.11	2	0.000	Very Significant
The need to comply to set regulations	3.83	3	0.031	Significant
Adequate information and knowledge of risk management	3.77	4	0.003	Very Significant
Corporate governance	3.75	5	23.467	Not Significant
Complexity of project risks	3.72	6	20.355	Not Significant
Awareness of company vulnerabilities	3.55	7	0.256	Not Significant
Increase in emergence of risk events	3.39	8	0.000	Very Significant
Improved communication	3.37	9	8.677	Not Significant
Presence of risk officer/ internal auditor	3.36	10	11.019	Not Significant
Acknowledgement of risk management benefits	3.33	11	3.412	Not Significant
Emergence of new business trends	3.26	12	14.684	Not Significant
Advancement in technology	3.03	13	0.573	Not Significant
The need to benefit from competitive advantage	2.99	14	0.036	Significant
Meeting up with shareholder requirements	2.94	15	0.000	Very Significant
The need to maintain good business practice	2.93	16	0.000	Very Significant
Pressure from external auditor	2.80	17	9.656	Not Significant
The influence of globalization	2.32	18	0.000	Very Significant

Barriers to Effective Implementation of Risk Management in PPP Housing Projects in Abuja, Nigeria

The result of the analysis with respect to main barriers to effective implementation of risk management in PPP housing projects (Table 3) indicated that lack of information and knowledge of risk management was ranked first (4.90), lack of consciousness/awareness of the importance of risk management came second (3.95) and risk management not been a priority in the clients' requirements was ranked third (3.87) among the main barriers to effective implementation of risk management.

Hypothesis 2: Barriers to Effective Implementation of Risk Management in PPP Housing

The results of the study indicated that the individual groups of respondents rated barriers to effective implementation of risk management differently (Appendix 2). Lack of information and knowledge of risk management was ranked first by Contractors and Government officials; Consultants ranked it second and Sponsors ranked it seventh. Lack

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of consciousness/awareness of the importance of risk management and risk management not being a priority in the clients' requirements also received different ratings by the individual groups. The respective Kruskal-Wallis sig. P values (Table 3) for these factors were 0.025, 0.000 and 0.000 indicating significant variations. Therefore, the alternative hypothesis there is a significant variation in the barriers to effective implementation of risk management in PPP housing projects is accepted.

DISCUSSION OF RESULTS

This study investigated the level of implementation of risk management and the results indicated that all project managers consciously or unconsciously apply risk management principles in PPP housing projects. However, the approaches adopted are not systematic because few construction companies have formal risk management system with laid down processes for identifying, estimating and addressing risks in construction. Furthermore, risk management practices are highly intuitive because most construction firms depend on the experience of projects managers in managing risks in their various organisations with near absence of risk experts in the payrolls of the construction companies.

Table 3: Barriers to Effective Implementation of Risk Management in PPP Housing Projects

Barriers	Overall Rating		Kruskal-Walis	
	MS	Rank	Value	Remark
Lack of information and Knowledge of risk management	4.90	1	0.025	Significant
Lack of consciousness/ awareness of the importance of risk management	3.95	2	0.000	Very Significant
Not being a priority in clients' requirements	3.87	3	0.000	Very Significant
Lack of government legislations mandating risk management in construction projects	3.84	4	0.000	Very Significant
Inappropriate risk analysis and allocation	3.79	5	0.000	Very Significant
Lack of accepted industry model for risk analysis	3.76	6	0.000	Very Significant
Lack of joint management mechanisms for parties	3.60	7	0.000	Very Significant
Lack of incentive for better risk management	3.57	8	0.006	Very Significant
Ineffective monitoring of risk management process	3.53	9	0.133	Not Significant
Belief that risk management is not cost effective	3.46	10	0.028	Significant
Low profit margin/ company turnover	3.43	11	0.000	Very Significant
Unavailability of specialist risk management consultants	3.41	12	0.056	Not Significant
Different perceptions of risk control mechanism by contracting parties	3.38	13	0.530	Not Significant
Lack of dedicated resources for risk management	3.36	14	0.000	Very Significant
Nature/ size of construction project	3.27	15	0.753	Not Significant
Non-viability of risk analysis in commercial terms	3.27	15	0.002	Very Significant
Lack of consciousness/ awareness of the importance of risk management	3.21	17	0.075	Not Significant
Difficulty in appreciating the benefits of risk management	3.20	18	0.000	Very Significant
Time constraints	3.05	19	0.001	Very Significant

The study also indicated that the determinants to effective implementation of risk management were Strong support from top management, corporate governance, level of company turnover and the need to comply to set regulations. Large amount of company resources are required for expensive risk management practices which needs the support of management. Top management can also encourage practice of risk management by providing the enabling environment in their various organisations by way of creating dedicated departments and employing experts to handle issues pertinent to project risks. However, the results of this study showed that the enabling environment is lacking in majority of the construction companies. In organisations where such support is lacking, implementing risk management becomes difficult. The application of risk management in construction projects is an emerging concept in most developing countries, including Nigeria. Consequently, risk management culture has not been fully developed and imbibed among stakeholders in the construction industry.

Risk management entails allocation of additional resources to ensure effective implementation of risk management plan. Thus it is rational to believe that larger firms in terms of larger assets are more capable in launching the costly risk management practices. Consequently, average risk management users are large companies who have high inclination to build state-of-the art risk management systems. Small and medium construction companies lack the capacity to commit resources in risk management. Understandably, low profit margin was identified as an obstacle to the effective implementation of risk management in PPP housing projects in Abuja. Majority of construction companies in Abuja fall within the small and medium range thereby lacking the capacity to built strong and vibrant risk management system. This explains the inability of private developers to implement formal risk management in PPP housing projects.

Organisations can also implement risk management to comply with set rules and regulations. PPPs are contractual arrangements in which relationship between stakeholders is defined by provisions of the contract. Contracting parties try to act within the confines of the contract; hence where implementing risk management is specified as part of the contract, stakeholders will ensure they comply since PPPs are performance based contracts. However, study of PPP practices in Nigeria showed that there are no adequate legislations mandating the implementation of risk management in such projects. In addition, the ICRC which regulates the practice of PPP in Nigeria did not adequately address the subject. Neither the statement of intent on risk management nor experience of the developer concerning risk management is mandatory in the bidding documents. Lack of government legislations has been reported elsewhere as one of the major barriers to effective implementation of risk management in construction projects (Hwang, Zhao & Toh, 2014). Adequate enforceable legislations mandating the implementation of risk management PPPs will promote the adoption of the principle in PPP housing projects thereby reducing the numerous challenges facing housing provision through PPP arrangements in Abuja. Familiarity with the risk management process as well as the benefits of adopting the concepts encourages the practice within an organisation. However, where such knowledge

is lacking, especially among top officials of an organisation, it becomes an obstacle as the benefits associated with risk management are not fully appreciated. Respondents reported this as a major obstacle to the implementation of risk management in PPP housing in Abuja. This confirms the findings of Chileshe and Yirenyi-Fianko (2012) that lack of knowledge and information as a major challenge to effective implementation of risk management in Ghana. Similar findings were also reported in the Malaysian construction industry (Goh & Abdul-Rahman, 2013).

CONCLUSION

This study appraised the implementation of risk management principles in PPP housing projects in Abuja, Nigeria. Risk management is been adopted in PPP in housing projects but the practice lacks the needed sophistication to adequately address risks in such projects. Risks management is based on intuition rather than formal and systematic approach. There is the need for formal and structured approach to managing risks in construction projects such as PPP housing. The concept of risk management is an emerging concept in many developing countries including Nigeria; consequently, risk management culture is not fully developed. There are no adequate legislations mandating project managers to implement risk management in PPP housing projects. Furthermore, project managers lack the basic knowledge of risk management, the importance of risk management is not fully appreciated, and consideration of risk management is seldom part of client requirement and is not part of contractor's bidding documents. Furthermore, track record of risk management in previous projects is not required of a contractor bidding for a project. Elaborate risk management plan should be made a requirement in bidding for PPP housing projects with backing legislations to ensure its implementation. Lack of support from top management has also affected smooth implementation of risk management in most organisations. Results of the analysis indicated that, top management have not been able to provide the enabling environment by way of creating dedicated departments for risk management, employing risk experts and saddling them with the responsibility of handling risk issues, dedicating financial and other resources for risk management in construction projects. Top management need to make conscious effort towards creating enabling environment to encourage the implementation of risk management in their organisations. This study recommends the adoption/implementation of the research findings so as to improve the performance of PPP housing projects in order to help in improving the supply and access to decent and affordable housing by Nigerians.

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APPENDIX 1

Drivers to effective implementation of risk management in PPP housing projects

Drivers	Respondents: Contractors No = 33 MS	Rank	Consultants No = 26 MS	Rank	Governments No = 26 MS	Rank	Sponsors No = 22 MS	Rank	Overall Rating MS	Rank
Strong support from top management	3.91	2	4.82	1	3.92	1	4.28	3	4.20	1
Level of company turnover	4.00	1	4.46	2	3.65	2	4.41	1	4.11	2
The need to comply to set regulations	3.64	4	4.19	5	3.65	2	3.91	5	3.83	3
Adequate information and Knowledge of risks mgt	3.33	11	4.15	4	3.38	10	4.36	2	3.77	4
Corporate governance	3.67	3	4.19	5	3.31	11	3.86	6	3.75	5
Complexity of project risks	3.52	7	4.35	3	3.15	15	3.95	4	3.72	6
Awareness of company vulnerability	3.39	9	3.62	9	3.46	9	3.82	7	3.55	7
Increase in emergence of risk events	3.27	13	3.46	10	3.54	6	3.32	9	3.39	8
Improved communication	3.61	5	3.46	10	3.19	14	3.14	11	3.37	9
Presence of risk officer/ internal auditor	3.58	6	3.65	8	3.31	11	2.73	13	3.36	10
Acknowledgement of risk management benefits	3.33	11	3.38	12	3.50	7	3.05	12	3.33	11
Emergence of new business trends	3.42	8	3.85	7	2.92	17	2.73	13	3.26	12
Advancement in technology	3.30	10	2.81	15	3.62	4	2.18	17	3.03	13
The need to benefit from competitive advantage	2.94	16	3.15	14	3.31	11	2.50	16	2.99	14
Meeting up with shareholder requirements	3.15	14	2.65	16	3.54	6	2.27	15	2.94	15
The need to maintain good business practice	3.00	15	2.65	16	3.62	4	2.32	10	2.93	16
Pressure from external auditors	2.94	16	3.15	13	2.65	18	2.36	8	2.80	17
The influence of globalization	2.48	18	2.08	18	3.00	16	1.55	18	2.32	18

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APPENDIX 2

Barriers to effective implementation of risk management in PPP housing projects

Barriers	Respondent Contractors *No = 33*		Consultants *No =26*		Government *No = 26*		Sponsors *No = 22*		Overall Rating	
	MS	Rank	MS	Rank	MS	Rank	MS	Rank	MS	Rank
Lack of information and knowledge of risk management	4.55	1	4.46	2	6.73	1	4.01	7	4.90	1
Lack of consciousness/ awareness of the importance of risk management	3.76	4	4.65	1	3.42	5	4.05	6	3.95	2
Not being a priority in clients' requirements	4.00	2	4.27	4	2.85	17	4.41	3	3.87	3
Lack of government legislations mandating risk management in construction project	3.61	5	4.23	5	3.23	9	4.45	1	3.84	4
Inappropriate risk analysis and allocation	3.85	3	4.42	3	3.04	15	3.86	11	3.79	5
Lack of accepted industry model for risk analysis	3.27	12	4.15	6	3.38	8	4.45	1	3.76	6
Lack of joint management mechanisms for parties	3.18	17	3.88	7	3.15	10	4.41	3	3.60	7
Lack of incentive for better risk management	3.55	6	3.69	10	3.15	10	3.95	9	3.57	8
Ineffective monitoring of risk management process	3.55	6	3.85	9	3.42	5	3.27	17	3.53	9
Belief that risk management is not cost effective	3.55	16	3.31	16	3.15	10	3.86	11	3.46	10
Low profit margin/ Company turnover	3.21	16	3.88	7	2.46	23	4.36	5	3.43	11
Unavailability of specialist risk management consultants	3.61	5	3.62	12	3.08	14	3.27	17	3.41	12
Different perceptions of risk control mechanism by contracting parties	3.21	15	3.27	18	3.50	3	3.64	14	3.38	13
Lack of dedicated resources for risk management	3.24	13	3.69	10	2.62	20	4.00	8	3.36	14
Nature/ size of construction project	3.18	17	3.15	20	3.42	5	3.36	15	3.27	15
Non-viability of risk analysis in commercial terms	3.00	20	3.54	14	2.81	18	3.91	10	3.27	15
Lack of information and Knowledge	3.55	6	3.19	18	3.15	10	2.82	20	3.21	17
Difficulty in appreciating the benefits of risk management	3.24	13	3.42	15	2.58	22	3.59	13	3.20	18
Time constraints	3.33	11	2.62	22	3.63	2	2.45	21	3.05	19