

Prioritisation of the Determinants of Risk Management (Rm) Capabilities and Commitments in Public Private Partnerships (Ppp) Projects

Tsanyawa N.I. and Abubakar Y.S
Federal University, Birnin Kebbi, Kebbi State, Nigeria

Submitted: 15-09-2021

Revised: 25-09-2021

Accepted: 28-09-2021

ABSTRACT: Public Private Partnership (PPP) arrangements are rapidly becoming the preferred way to provide public services in many countries (Jin and Doloi, 2008), due to the rapid social and economic growth, a massive demand for investment in infrastructure has been witnessed in many countries (The World Bank, 2008). Risk allocation in PPP is claimed to be capability driven because the party possessing the best capability of management with respect to a particular risk has the best opportunity to reduce the likelihood and control of the consequences of the risk if it materializes. But, it was established from literature that risk management commitment is an important factor to consider when allocating risk in PPP. The research have identified the determinant of risk management capabilities and commitments of construction organizations and assessed the level of importance of the risk management capability and commitment determinants for a successful risk allocation. The research adopted quantitative research methodology; questionnaires distributed in Abuja and literature review were used to collect data. Data was analyzed using descriptive statistical tools. The research found eleven (11) RM capability determinants and three (3) RM commitment determinants which were assessed for all the five (5) risk allocation strategies and the most important of them were sorted out. The research recommended that when allocating risk in PPP consideration shouldn't just be the organization that is capable but also commitment to manage the risk.

I. INTRODUCTION

Public Private Partnership (PPP) arrangements are rapidly becoming the preferred

way to provide public services in many countries [7], [13], due to the rapid social and economic growth, a massive demand for investment in infrastructure has been witnessed in many countries [1]. Conventional provision of infrastructure funded by governments has led to inefficacy and subjected infrastructure development to the availability of governmental funds. PPP is defined by the National Council for Public-Private Partnerships, USA (2009) as "a contractual agreement between public agencies (federal, state, or local) and a private sector entity." through which the skills and assets of each sector are shared in delivering a service or facility for the use of the general public.

Risk management includes the process of conducting risk management planning, identification, analysis, response planning, and monitoring and control on a project. The objectives of risk management are to increase the probability and impact of positive events, and decrease the probability and impact of negative events in the project.

To be successful, the organization should be committed to address risk management proactively and consistently throughout the project. A conscious choice must be made at all levels of the organization to actively identify and pursue effective risk management during the life of the project. Risk exists the moment a project is conceived. Moving forward on a project without a proactive focus on risk management increases the impact that a realized risk can have on the project and can potentially lead to project failure.

Risk allocation in public-private partnership (PPP) projects is currently claimed as capability driven [7] and that is because [22] said that party possessing the best capability of

management with respect to a particular risk has the best opportunity to reduce the likelihood of the risk eventuation and to control the consequences of the risk if it materializes. But it has been found out that partners risk management routine, mechanism, commitment, cooperation history associated with project risk management could serve to determine the risk allocation strategies adopted in a PPP project [7]. It has also been argued that in order to achieve optimal risk allocation, apart from appropriate capability of risk management, a risk should be borne by the party who present willingness and commitment [2], [13], [15].

The aim of this study is to assess the determinants of risk management capabilities and commitments of PPP projects. This is important because the findings in this study will help in knowing key capability and commitment determinants in PPP.

II. LITERATURE REVIEW

[5], [7], Identified the organization risk management capabilities and also [24], identified the organizational risk management commitment determinant which were used to solve the objective of the study.

2.1 Risk Management Capabilities

As RM capabilities of involved parties have become the major concern when choosing a risk allocation strategy, a review on organizational

capability is necessary. The notion of capabilities can be traced back to [21]. RM capability can be further operationalized into the following.

2.1.1 RM routine

Organizations develop capabilities by carrying out related activities repeatedly [20]. Differences in past activities thus lead to heterogeneous capabilities. Firms are entities that possess heterogeneous capabilities as a function of their routines and search processes [16].

2.1.2 RM mechanism

Capabilities tend to evolve over time to reflect the joint effects of passive learning-by-doing and deliberate firm level investments in learning and making improvements [10]. They are more likely to develop effectively when purposefully designed mechanisms are established to accumulate, store, integrate and diffuse relevant organizational knowledge acquired through experience [17]. These integrative mechanisms act as an important locus of firm learning. Thus, while greater RM experience may be a necessary condition for organizations to build RM capability, it may not be sufficient. RM capability would also rest upon how effectively the organization is able to capture, share and disseminate the RM know-how.

[5], identified the organization risk management capabilities which are shown in the table below;

Table 2.1 Risk Management Capabilities

s/no	Risk Management Capabilities
A Risk management routine	
1	Partner's experience in managing risk
2	Partner's understanding of consequences of project risk
3	Partner's best able to manage risk at least cost
4	Partner's heterogeneous capabilities
B Risk management mechanism	
1	Maturity of partner's risk identification and classification
2	Risk analysis mechanism of partner's
3	Risk response planning of partners
4	Risk monitoring and control mechanism of partner's
5	Partners ability to bear risk when its eventuate
6	Partner's ability to capture, share and disseminate the RM know-how
C Partner's cooperation history	
1	Partner's transaction frequency

2.2 Risk Management Commitment

While capabilities in risk management remain the major concern when considering optimal risk allocation strategies, it has been recently argued that, in order to achieve optimal risk allocation, apart from appropriate capability in risk management, a risk should be borne by the party who presents willingness or commitment [2],[13],[15].

Opportunistic behavior and commitment are closely related in a reserved way. Whilst opportunism is an indicator to partners' commitment in responding to the environmental uncertainty [14], [18], commitment can serve to reduce the risk exposure of the contractual parties, and thereby reduce the economic incentive of any contractual party to behave opportunistically in the exchange process *ex post* [23]. Commitment is therefore closely linked to effective strategy implementation [14], such as efficient risk management [13]. Organizational commitment may be placed within the scope of exchange theory

[10], [12], [16], [19] It is defined as "the belief in and acceptance of organizational goals and values, a willingness to exert effort on behalf of the organization, and a desire to maintain organizational membership" [19] Following [8], commitment is defined in this study as a willingness of partners to make short-term sacrifices to realize long-term benefits in the relationship. This kind of commitment is beyond "calculative" commitment, which is based solely

on self-interest. In contrast, it suggests a level of "affective attachment" based not only on self-interest, but on the norm of reciprocity and on mutual attraction [9], [12]. In creating a PPP from their combined resources, the government agency and private consortium contribute a set of inducements and design processes aimed at motivating the project management team to commit itself to accepting the goals and values jointly established for the project.

While most research on commitment has focused on individual commitment, the focus in this study is on the team commitment to risk management. It was expected that the commitment of individual will vary, at times quite dramatically [14]. Differences in individual's prior experience, national origin, involvement in decision-making, and length of tenure in the team are all likely to impact their individual level of commitment to risk management implementation. However, because members of a risk management team function as a group, their commitment as a team is important, apart from individual variations in commitment. Thus, though it is not assumed that all individuals have the same level of commitment, it is assumed that team members will have an overall sense of the commitment of the team to the goals of risk management decision [11].

[23] suggested considering the willingness of a contracting party to bear risk when allocating a given type of risk. This willingness is similar to commitment and can be measured mainly by:

s/no	Risk Management Capabilities
1	General attitude to the risk.
2	The perception of one's own ability to manage the risk.
3	The perceived reward for bearing the risk.

The target population of the survey was construction. Therefore, it was proposed that the RM commitment can be determined by the aforementioned three indicators and thus be measured by their aggregate level. "General attitude to risk", the first indicator, refers to a party's preference for different risk/return trade-offs [23]. According to Barnes (1983), a risk-averse person is one who will pay a premium to avoid risk; a risk-seeking person is one who will pay a premium in exchange for the pleasure of taking a risk that he or she is not even obliged to face; and a risk-neutral person is neither risk-averse nor risk-seeking.

One organization may prefer low-risk, low-expected return opportunities, while another

may prefer high-risk, high-expected return opportunities [23]. With regard to the second indicator, i.e. "the perception of one's own ability to manage the risk", if a party feels able to manage a risk, they will be more willing to bear this risk. The third indicator, "the perceived reward for bearing the risk", recognizes that economic benefits and risks ought to be matched and implies that a party may bear a risk if the economic benefit of running the risk accrues to them [3]. In order to measure the indicators to partners' risk management commitment, they were stated as follows:

"Partner's willingness to put in greater effort than normal to manage this risk" for the indicator of "general attitude to the risk".

“Partner’s confidence in its capability to manage this risk” for the indicator of “perceived own ability to manage the risk”.

“Partner’s expectation on possible gains by managing this risk” for the indicator of “perceived reward for bearing the risk”.

III. RESEARCH METHOD

The research adopted quantitative research methodology. Data was collected using a questionnaire comprising closed ended question from construction firms. The collected data was analyzed using “descriptive statistical tools” charts were also used for data presentation. This is because previous studies of similar nature adopted this method and because of the nature of the research problem that the study seeks to answer.

professionals and decision makers who have been or likely to be involved in risk management of PPP projects in Nigeria and precisely in Abuja because that is the heart of construction companies in Nigeria. The Abuja galleria website www.abjbusinessdirectory.com was used to ascertain the number of construction companies in Abuja which are 205.

3.1 Data Analysis

The data collected was analyzed with the aid of descriptive and inferential statistics tools, Statistical Package for Social Science (SPSS) software was used for the analysis. Frequency distribution tables were used to analyze the background information, while mean value analysis (MVA) was used for analyzing the capability and commitment determinants.

IV. RESULT DISCUSSION

4.1 Assessment of Risk Management Capabilities and Commitments for Risk Allocation

RETAIN ALL THE RISK

The table below (Table 4.1.1) shows the assessment of RM capability and commitment determinants for “Retain all” risk allocation strategy. It indicates the level of importance of each determinant in selecting the risk allocation strategy “Retain all the risk”, with their mean scores which were gotten using a Likert scale of 1-5, where 1 denotes not important and 5 denotes very important. The table indicated from the aspect of RM capabilities that the 3 most important determinant are A1=“Partners experience in managing the risk”, A2= “Partners understanding of consequences of project risk” and A10= “Partners ability to capture, share and disseminate the RM know-how”. They are the determinant with the highest mean values.

In summary, the table shows that the 3 most important RM capability determinants to be considered with respect to the risk allocation strategy are;

1. A1= Partners experience in managing the risk
2. A2= Partners understanding of consequences of project risk
3. A10= Partners ability to capture, share and disseminate the RM know-how

The table also shows from the aspect of RM commitment the mean values of the determinant and indicated the most important commitment determinant for every risk allocation strategy.

Table 4.1.1: Risk Management Capabilities and Commitments for "Retain all"

	Determinants	Mean	STD	Rank
Capabilities Determinants				
A1	Partners experience in managing risk	4.06	0.98	1
A2	Partners understanding of consequences of project risk	4.03	0.95	2
A10	partners ability to capture, share and disseminate the RM know-how	3.94	0.97	3
A7	risk response planning of partners	3.91	1.16	4
A3	Partners best able to manage risk at least cost	3.88	1.14	5
A6	Risk analysis mechanism of partners	3.85	1.12	6
A5	Maturity of partners risk identification and classification	3.85	1.03	6
A8	Risk monitoring and control mechanism of partners	3.73	1.13	7
A9	Partners ability to bear risk when its eventuate	3.67	1.24	8

A4	Partners heterogeneous capabilities	3.61	0.89	9
A11	Partners transaction frequency	3.45	1.25	10
<u>Commitment Determinants</u>				
B2	Perception of one's own ability to manage the risk	3.97	0.98	1
B3	Perceived reward for bearing the risk	3.7	1.29	2
B1	Attitude to the risk	3.58	1.28	3

Source; Field survey 2021

TRANSFER A SMALL PORTION OF THE RISK

As shown in the table below (Table 4.1.2) the 3 most important determinants with the highest mean values are A3= "Partners best able to manage risk at least cost", A9= "Partners ability to bear risk when its eventuate" and A4= "Partners heterogeneous capabilities" this signifies that these are the most important RM capability determinant to be considered in the risk allocation "Transfer a small portion of the risk". They are the

determinants for this risk allocation strategy that were mapped with all the RM commitment determinants.

In summary they are;

1. A3= "Partners best able to manage risk at least cost"
2. A4= "Partners heterogeneous capabilities"
3. A9= "Partners ability to bear risk when its eventuate"

Table 4.1.2: Risk Management Capabilities and Commitments for "Transfer a Small Portion"

	Determinants	Mean	STD	Rank
<u>Capabilities Determinants</u>				
A3	Partners best able to manage risk at least cost	3.67	1.11	1
A9	Partners ability to bear risk when its eventuate	3.58	1	2
A1	Partners experience in managing risk	3.52	1.03	3
A4	Partners heterogeneous capabilities	3.52	0.97	3
A5	Maturity of partners risk identification and classification	3.45	1.09	4
A6	Risk analysis mechanism of partners	3.39	1.17	5
A7	risk response planning of partners	3.33	1.19	6
A8	Risk monitoring and control mechanism of partners	3.36	1.19	6
A10	partners ability to capture, share and disseminate the RM know-how	3.33	1.22	6
A8	Risk monitoring and control mechanism of partners	3.36	1.19	7
A11	Partners transaction frequency	3.24	1	8
<u>Commitment Determinants</u>				
B2	Perception of one's own ability to manage the risk	3.55	1.03	1
B3	Perceived reward for bearing the risk	3.48	1.18	2
B1	Attitude to the risk	3.39	1.03	3

Source; Field survey 2021

EQUALLY SHARE THE RISK

Table 4.1.3 which is the table below, shows that the 3 most important RM capability determinants to be considered are A5= "Maturity of

partners risk identification and classification", A1= "Partners experience in managing risk" and A2= "Partners understanding of consequences of project risk" as they emerged the first 3 in the rankings

with the highest mean values. So in the risk allocation strategy “Equally share the risk” the above RM capability determinants are to be considered first. They are the determinants that were mapped with all the RM commitment determinants.

In summary they;

1. A1= “Partners experience in managing risk”
2. A2= “Partners understanding of consequences of project risk”
3. A5= “Maturity of partners risk identification and classification”

Table 4.1.3: Risk Management Capabilities and Commitments for "Equally Share"

	Determinants	Mean	STD	Rank
<u>Capabilities Determinants</u>				
A5	Maturity of partners risk identification and classification	3.91	0.81	1
A3	Partners best able to manage risk at least cost	3.79	0.96	2
A1	Partners experience in managing risk	3.79	0.96	2
A2	Partners understanding of consequences of project risk	3.67	0.82	3
A6	Risk analysis mechanism of partners	3.64	0.89	4
A6	Risk analysis mechanism of partners	3.64	0.89	4
A7	risk response planning of partners	3.58	0.9	5
A4	Partners heterogeneous capabilities	3.58	0.83	5
A7	risk response planning of partners	3.58	0.9	5
A10	partners ability to capture, share and disseminate the RM know-how	3.48	0.87	6
A9	Partners ability to bear risk when its eventuate	3.42	0.9	7
<u>Commitment Determinants</u>				
B1	Attitude to the risk	4	0.71	1
B3	Perceived reward for bearing the risk	3.55	0.97	2
B2	Perception of one’s own ability to manage the risk	3.48	1	3

Source; Field survey 2021

RETAIN A SMALL PORTION THE RISK

From the below table (Table 4.1.4), it is concluded that the 3 most important RM capability determinants in regards to the risk allocation “Retain a small portion of the risk” are A1= “Partners experience in managing risk”, A4= “Partners heterogeneous capabilities” and also A6= “Risk analysis mechanism of partners”. So in the risk allocation strategy “Retain a small portion of the risk” the most important RM capability

determinants to consider are the above listed determinants. They are also the determinants that were mapped with all the RM commitment determinants.

In summary they are;

1. A1= “Partners experience in managing risk”
2. A4= “Partners heterogeneous capabilities”
3. A6= “Risk analysis mechanism of partners”

Table 4.1.4: Risk Management Capabilities and Commitments for "Retain a Small Portion"

	Determinants	Mean	STD	Rank
<u>Capabilities Determinants</u>				
A1	Partners experience in managing risk	3.42	1.15	1
A6	Risk analysis mechanism of partners	3.36	0.78	2

A4	Partners heterogeneous capabilities	3.36	0.89	2
A3	Partners best able to manage risk at least cost	3.27	1.01	3
A5	Maturity of partners risk identification and classification	3.24	1.23	4
A9	Partners ability to bear risk when its eventuate	3.21	1.02	5
A7	risk response planning of partners	3.06	0.93	6
A10	partners ability to capture, share and disseminate the RM know-how	2.94	1.06	7
A11	Partners transaction frequency	2.94	1.14	7
A2	Partners understanding of consequences of project risk	2.88	0.82	8
A8	Risk monitoring and control mechanism of partners	2.91	0.91	8
<u>Commitment Determinants</u>				
B3	Perceived reward for bearing the risk	3.18	1.25	1
B1	Attitude to the risk	3.15	1.2	2
B2	Perception of one's own ability to manage the risk	3	1.22	3

Source; Field survey 2021

TRANSFER ALL THE RISK

The table below (**Table 4.1.5**) which is for RM capabilities and commitments against the risk allocation strategy "Transfer all the risk" which is the last risk allocation strategy, it shows that the 3 most important RM capability determinants to be consider in respect of the above risk allocation strategy are A4= "Partners heterogeneous capabilities", A3= "Partners best able to manage risk at least cost" and also A6= "Risk analysis

mechanism of partners". They are also the determinants that were mapped with all the RM commitment determinants.

In summary they are;

1. A3= "Partners best able to manage risk at least cost"
2. A4= "Partners heterogeneous capabilities"
3. A6= "Risk analysis mechanism of partners"

Table 4.1.5: Risk Management Capabilities and Commitments for "Transfer all"

	Determinants	Mean	STD	Rank
<u>Capabilities Determinants</u>				
A4	Partners heterogeneous capabilities	3.79	1.34	1
A3	Partners best able to manage risk at least cost	3.58	1.17	2
A6	Risk analysis mechanism of partners	3.52	1.2	3
A5	Maturity of partners risk identification and classification	3.48	1.34	4
A2	Partners understanding of consequences of project risk	3.42	1.15	5
A7	risk response planning of partners	3.39	1.19	6
A9	Partners ability to bear risk when its eventuate	3.36	1.17	7
A1	Partners experience in managing risk	3.27	1.21	8
A10	partners ability to capture, share and disseminate the RM know-how	3.21	1.32	9
A8	Risk monitoring and control mechanism of partners	3.15	1.15	10

A11	Partners transaction frequency	3.12	1.29	11
<u>Commitment Determinants</u>				
B2	Perception of one's own ability to manage the risk	3.45	1.33	1
B3	Perceived reward for bearing the risk	3.21	1.32	2
B1	Attitude to the risk	3	1.48	3

Source; Field survey 2021

V. CONCLUSION AND RECOMMENDATION

CONCLUSIONS

Literature review indicated that RM capability and commitment are relevant factors that need to be considered in PPP projects. The research using literature found out the various RM capability and commitment determinants which were assessed for five (5) risk allocation strategies and the most important of them taken into consideration. The research also found out that the RM commitment determinants used are all important via literature. So the most important of the RM capability determinant for the various risk allocation strategy are;

1. Partners experience in managing the risk, Partners understanding of consequences of project risk, Partners ability to capture, share and disseminate the RM know-how, are the most important capability determinants for the risk allocation strategy "Retain all the risk".
2. Partners best ability to manage risk at least cost, Partners heterogeneous capabilities, Partners ability to bear risk when it's eventuate, are for "Transfer a small portion of the risk".
3. Partners experience in managing risk, Partners understanding of consequences of project risk, Maturity of partners risk identification and classification, are for "Equally share the risk".
4. Partners experience in managing risk, Partners heterogeneous capabilities, Risk analysis mechanism of partners, are for "Retain a small portion of the risk".
5. Partners best ability to manage risk at least cost, Partners heterogeneous capabilities, Risk analysis mechanism of partners, are the most important risk management determinant for allocation strategy "Transfer all the risk".

RECOMMENDATIONS

Based on the result obtained from this study, the following are recommended as ways of improving successful achievement of PPP project

1. Careful Implementation of the findings of this research will improve successful achievement of PPP projects in Nigeria.

2. Level of influence of organizational risk management capability and commitment against risk allocation strategy should also be checked as this research has identified the various capability and commitment determinants.

REFERENCES

- [1]. (The) World Bank (2008), Private Participation in Infrastructure (PPI) Project Database, available at: <http://ppi.worldbank.org/> (accessed February).
- [2]. Abednego, M. a. (2006). Good project governance for proper risk allocation in public-private partnerships in Indonesia. *International journal for Project management*, 622-34.
- [3]. Anderson, E. and Weitz, B. (1992), "The use of pledges to build and sustain commitment in distribution channels", *Journal of Marketing Research*, Vol. 29, pp. 18-34
- [4]. Barnes, M. (1983), "How to allocate risks in construction contracts", *International Journal of Project Management*, Vol. 1 No. 1, pp. 24-8.
- [5]. Chan, A.P.C., Yeung, J.F.Y., Yu, C.C.P., Wang, S.Q. and Ke, Y. (2011). Empirical study of risk assessment and allocation of public-private partnership projects in China. *ASCE journal for management in Engineering*, 136-48.
- [6]. Chan, Effah Ernest Ameyaw & Albert P.C. (2015). Risk allocation in public-private partnership water supply in Ghana. *Construction Management and Economics*, 187-208.
- [7]. Doloi, Xiao- Hua Jin & Hemanta. (2008). Interpreting risk allocation mechanism in public-private partnership project: an empirical study in transaction cost economic perspective. *Construction Management and Economics*, 707-721.
- [8]. Dwyer, F.R., Schurr, P.H. and Oh, S. (1987), "Developing buyer-seller relationships", *Journal of Marketing*, Vol. 51 No. 2, pp. 11-27.

- [9]. Eisenberger, R., Fasolo, P. and Davis-LaMastro, V. (1990), "Perceived organizational support and employee diligence, commitment, and innovation", *Journal of Applied Psychology*, Vol. 75, pp. 51-9.
- [10]. Etzioni, A. (1961), *A Comparative Analysis of Complex Organizations*, The Free Press, New York, NY.
- [11]. Gould, S. (1979), "An equity-exchange model of organizational involvement", *Academy of Management Review*, Vol. 4, pp. 53-62.
- [12]. Gouldner, A.W. (1960), "The norm of reciprocity: a preliminary statement", *American Sociological Review*, Vol. 25, pp. 161-79.
- [13]. Jin, X.-H. (2010). Determinants of efficient risk allocation in privately financed public infrastructure project in austria. *ASCE Journal of Construction Engineering and Management*, 138-50.
- [14]. Johnson, J.P., Korsgaard, M.A. and Sapienza, H.J. (2002), "Perceived fairness, decision control, and commitment in international joint venture management teams", *Strategic Management Journal*, Vol. 23 No. 12, pp. 1141-60.
- [15]. Loosemore, M., Raftery, J., Reilly, C. and Higgon, D. (2006). *Risk Management in Projects*, 2nd ed. London: Taylor & Francis.
- [16]. March, J.G. and Simon, H.A. (1958), *Organizations*, Wiley, New York, NY.
- [17]. Marques, R.C. and Berg, S. (2011). Risks, contracts, and private-sector participation in infrastructure. *ASCE journal for construction and Engineering management*, 925-32.
- [18]. Miller, D. (1987), "The structural and environmental correlates of business strategy", *Strategic Management Journal*, Vol. 8 No. 1, pp. 55-76.
- [19]. Mowday, R.T., Steers, R.M. and Porter, L.W. (1979), "The measurement of organizational commitment", *Journal of Vocational Behavior*, Vol. 14, pp. 224-47.
- [20]. Ren, H. (1994), "Risk management: risk lifecycle and risk relationships on construction projects", *International Journal of Project Management*, Vol. 12 No. 2, pp. 68-74.
- [21]. Tah, J.H.M. and Carr, V. (2000), "A proposal for construction project risk assessment using fuzzy logic", *Construction Management and Economics*, Vol. 18 No. 4, pp. 491-500.
- [22]. Thomas, A.V., Kalidindi, S.N. and Ananthanarayanan, K. (2003). Risk perception analysis of BOT road project participants in India. *construction management and economics*, 393-407.
- [23]. Ward, S.C., Chapman, C.B. and Curtis, B. (1991), "On the allocation of risk in construction projects", *International Journal of Project Management*, Vol. 9 No. 3, pp. 140-7.
- [24]. Xiao-Hua Jin, Guomin Zhang, Rebecca J. Yang. (2012). Factor analysis of partners commitment to risk management in public-private partnership. *Construction Innovation*, 297-316.