Bima Journal of Science and Technology, Vol. 7 (4) Dec, 2023 ISSN: 2536-6041

DOI: 10.56892/bima.v7i4.541

Alliance Formation in Public Private Partnership Housing Projects in Abuja, Nigeria

[1]Adeagbo Dorcas Omolola, [2]Sani Mohammed and [2]*Abdulkadir Sani

[1]Department of Building, University of Jos, Jos, Nigeria

[2]Department of Building, Abubakar Tafawa Balewa University Bauchi, Nigeria

Corresponding Author: sabdulqadir@atbu.edu.ng

ABSTRACT

The emergence of the Public Private Partnership in housing delivery was to allow the private sector to participate in affordable housing provision. However, the increasing Nigerian population still has a significant shortage of affordable housing units. Hence, the need for an alliance formation approach to provide housing at a cheaper rate is the basic need of man. This study aims to assess the challenges in affordable housing project delivery and examine the factors in alliance formation methods for effective housing project delivery. Research design was used, and the study population was drawn from Architects, Quantity Surveyors, Civil Engineers, Contractors and Project Managers. A purposive sampling approach was adopted for this study. A total of 80 questionnaires were distributed, and 52 were returned. This represents a response rate of 64%. Descritive statistics such as mean and relative important index were used for the analysis of data. The findings show the problem of inaccessibility to land in good locations and inadequate funding by the mortgage system were the significant factors affecting housing delivery. The analysis further revealed that the alliance formation, which involves sharing material and financial resources between public, private, and contractual parties, would significantly contribute to affordable housing delivery.

Keywords: Public Private Partnership, Affordable Housing, Alliance Formation

INTRODUCTION

The challenge of a high population in a developing Nation such as Nigeria with an increasing need for housing provision has been a major source of concern. This challenge is becoming more severe, with the Federal Government of Nigeria estimating a deficit of 17million houses in Nigeria (Makinde, 2014). The government has used various strategies to increase affordable housing provision, which has yielded few results. One recent approach adopted has been the Public Private Partnership (PPP), an arrangement that leverages private funding and the strength of private entrepreneurship and management for the maximum provision of public services in a climate of scarce resources. This procurement strategy has grown so fast worldwide since its advent in 1992, meeting the Building and Infrastructure needs globally (Ayeyemi, 2018). However, despite being used as the silver bullet with which governments across the globe solve their services and infrastructural problems, there has been challenges to the effectiveness of PPP in delivering affordable housing in Nigeria. Therefore, this study seeks to investigate the prospects of alliance formation in affordable housing delivery in Nigeria.

Challenges in Affordable Housing Delivery

Affordable housing is an essential right everybody should be able to enjoy (Amnesty International, 2022). Affordable housing refers to housing for rent or purchase affordable to households with constrained financial capacity to obtain private housing. There is, however, much confusion and

DOI: 10.56892/bima.v7i4.541

debate about what constitutes affordable housing. Definitions vary across public discourse on housing policy and assistance programs, land use planning, and research contexts. Australia's Housing, Planning and Local Government Minister defines affordable housing as "housing which is affordable for low and moderate-income households across home ownership, private rental as well as public rental tenures". This definition of affordable housing is not limited to a particular type of housing or funding model or recognises traditional social rental housing through private rental housing and home purchase.

The United Nations defines affordable housing as, adequate in quality and location and does not cost so much that it prohibits its occupants from meeting other basic living costs or threatens their enjoyment of fundamental human rights (Amnesty International, 2022). Additionally, the United Nations estimates that, Nigeria's population in 2005 stood at 141 million and is predicted to reach 289 million by 2050 (Campbell, 2012). Over 40% of Nigerians live in urban areas; thus, rapid population growth may create demand pressure towards shelter and efficient supply and distribution of essential utilities such as transportation, water supply, health facilities, electricity and other services for the city dwellers, which are provided by the Government (Makinde, 2014). In order to substantially increase the national housing stock, the United Nations, (2010) pointed out that, this sector needs to be mobilised, organised, and motivated in line with the overall organisational structure of the housing delivery system. The current development trend in the country is that, private developers engage in affordable commercial housing for the few privileged ones in society, mainly for profit-making and not for the low-income group (Adedeji and Olotuah, 2012).

Developers are not easily able to finance the construction process. This is partly due to inefficiencies in the housing sector and shortages of materials and skilled labour. These combine with high-interest rates to make the construction process expensive (Nwafor, 2023). Investment in affordable housing is not accorded the priority it should command in national planning strategies and therefore, receives short shrift in attracting budgetary resources. Nor do national governments take a comprehensive approach to access to land, infrastructure, finance, legal systems and urban planning systems. This severely limits scaling up investment in housing and reduces their ability to attract resources from the private sector.

The Concept of Public-Private Partnership (PPP)

PPP seeks to encourage governments to move away from the direct provision of services and infrastructure but focuses mainly on providing an enabling regulatory and financial environment that would facilitate the optimum performance of the private sector in the different aspects of development. Abd-Elkawy, (2017) noted that PPP is celebrated globally as a viable strategy for addressing the shortage of public services in cities in the developing world. The global recognition accorded PPP as an alternative to the government provider approach is based on the notion that, it promotes multiple stakeholders' participation in the provision of critical infrastructure, leads to a reduction in governments' expenditure, and encourages efficient use of resources for improved service delivery at an affordable cost (Nwafor et al., 2023).

PPPs have become increasingly popular in recent years, offering a viable alternative to traditional public sector approaches to infrastructure development and service delivery (Akintoye, Beck and Oyedele, 2017). Dabak (2014) highlights several key benefits associated with PPP initiatives, particularly with the ability to deliver improved "value for money" and overall project outcomes. Firstly, PPPs can promote cost-effectiveness and efficiency. Private-sector involvement often leads to the application of innovative technologies and expertise, ultimately reducing project costs compared to solely public-funded endeavors (Estache et al., 2013). This "value for money" principle translates to superior services at a lower cost for the public (Albaladejo et al., 2011). Additionally, PPPs can accelerate project delivery by streamlining bureaucratic processes and minimizing delays (Odeh and Behm, 2010; Wolde-Rufael et al., 2016). Thus, swiftness can mitigate the risk of cost overruns and ensure timely access to vital infrastructure and services.

Furthermore, PPPs offer a risk-sharing mechanism. For instance, project risks associated with financing, construction, and operation are transferred to the party best equipped to manage them, typically the private sector (Williams and Dimitrijevic, 2014; De Millas and Rodríguez-Pose, 2015). This shields the government from unforeseen financial liabilities and enhances project stability (Iossa and Piga, 2012; Albaladejo et al., 2011). Additionally, PPPs can attract private capital, enabling governments to undertake larger and more ambitious projects without straining it own budgets (Bhattacharya and Banerjee, 2010; Akintoye et al., 2017). This facilitates the development of crucial infrastructure and services that might otherwise be constrained by limited public resources (De Millas and Rodríguez-Pose, 2015).

Beyond financial benefits, PPPs can also enhance service delivery of a projects. For instance, by focusing on certain respective areas of expertise, the government can concentrate on policy and governance, while the private sector handles the technical aspects of design, construction, and operation (Albaladejo et al., 2011). This division of labor can lead to improved service quality and efficiency (Odeh and Behm, 2010; Estache et al., 2013). Moreover, PPPs can generate positive political benefits for the government. By delivering high-quality infrastructure or services quickly and efficiently without significantly impacting the budget, PPPs can lead to public approval and political gain (Iossa and Piga, 2012).

Thus, PPPs can contribute to private sector growth and stability. These partnerships provide the private sector with access to secure, long-term investment opportunities with reduced risk due to government contracts (De Millas and Rodríguez-Pose, 2015; Williams and Dimitrijevic, 2014). This fosters private capital flow, creates job opportunities, and stimulates local industry (Akintoye et al., 2017). Additionally, PPPs can help to curb corruption by introducing transparent procurement processes and robust oversight mechanisms (Williams and Dimitrijevic, 2014). This ensures that resources are allocated efficiently and effectively, ultimately benefiting both the public and private sectors.

According to Owotemu et al., (2022), these apparent benefits have prompted key international financial institutions, including the World Bank and International Monetary Fund, to mount pressure on many developing countries to shift emphasis from state provision to liberalisation and privatisation of service provision. In addition, it has heightened research activities on different aspects of PPP, leading to the emergence of different meanings, conceptions and variants of PPPs in the past few decades (Ibem, 2011). This means that, PPP seeks to encourage governments to move away from the direct provision of services and infrastructure to focus mainly on providing an enabling regulatory and financial environment that would facilitate the optimum performance of the private sector in the different aspects of development. With this understanding, the primary function of public sector agencies in public-private partnerships (PPP) is fundamentally to remove significant limitations that impede the optimal functioning of the private sector in the areas of infrastructure and service delivery.

Another argument is that, PPP is a form of privatisation and an avenue for governments to abdicate their social responsibilities to the private sector to provide critical social services (Dabak, 2014). This suggests that besides the benefits of PPP, there are also obvious longstanding concerns about the possibility of PPP resulting in the loss of independence in decision-making on the part of government and the commercialisation of social service provision. These may negatively impact affordable housing provision to low-income people in the society.

Prospects of Alliance Formation in Affordable Housing Delivery

Alliance formation is a form of project delivery method that has become popular in recent decades as an alternative to the traditional way of project delivery. Alliance formation has become a better option for handling large, complicated projects and increasing stakeholder pressures (Walker-Lloyd, Mills and Walker, 2015). Alliance formation could lead to the creation of an improved project delivery method. Alliance formation is utilised when parties engaged in comparative risk unite to use their complementary capacity to accomplish a given task. Alliance in project delivery dates back to the mid-90s, when professionals collaborated through coordinated efforts and structured legally binding systems to implement complicated projects (Bimbola et al., 2020). Some construction projects today often involve completing complex, uncertain projects within tight budgets and time constraints, and collaboration is increasingly inevitable as projects become more dynamic and more contractors focus on protecting profit to the detriment of effective project delivery (Walker and Rahman, 2016). Project alliance is a dramatic departure from traditional contracting methods, which encourages project participants to work as an integrated team by trying to match the commercial objectives of profit-making to the project's actual outcome (Lloyd-Walker et al., 2014).

The objective of alliance formation is an arrangement where decisions are made based on the project's best interest, not in the individual's interest. Grant and Baden-Fuller, (2011) identified some primary success factors for project alliances: ability to share knowledge, administration methods of insight, mutual trust between parties, perfect alliance structure, target objectives, plainly comprehended jobs, universal vision, and ability to share risk. Lloyd-Walker et al., (2014) further described alliance structure as an agreeable partnership that must not be misjudged as mergers or acquisitions but as a collaboration with a length longer than a project.

Furthermore, project alliance structure ensures that, all uninsurable risk is shared between alliance project participants, and the project is governed by a project alliance board where decisions must be unanimous (Lloyd-Walker et al., 2014). In alliance, a project

DOI: 10.56892/bima.v7i4.541

management team that handles daily issues comprises participants from all parties who make decisions in the project's best interest. Conflicts arising from projects or employers are handled internally, with litigation reserved only for rare circumstances. The most critical component of project alliance is pain sharing and gain sharing, where the actual project cost comes under the target cost, and parties share the profit from the project. If the project's actual cost exceeds the predetermined target cost, then the entire team shares the losses.

A strategy and process known as a partnership is one way to reach the goal of cooperation. Partnering is a relationship-building method built on trust, honesty and mutual respect. Subcontractor-contractor collaboration has an impact on construction performance. Mutual trust, communication, long-term relationships, solving problems together, achieving mutual project objectives, and equity are all benefits of a good relationship between contractor and subcontractor. Contractors and subcontractors benefit from developing similar projects' aims and objectives when a partnership between contracting parties is built on trust (Walker and Rahman, 2016).

Moreover, an alliance has no basis for building without a certain degree of confidence and integrity, and once the parties involved are disintegrated, the alliance's purpose is defeated. So, it is crucial for all parties entering an alliance to clearly and concisely identify their expectations. Lack of adequate knowledge and proper evaluation are challenges faced in strategic alliances, and it is necessary to know when to re-evaluate the alliance and adjust the structure to ensure that, a commercial relationship continues to support the contracting parties. All the companies involved in alliance formation must realise that, change is inevitable and, over time, must cooperate to reach new agreements. Other factors that could affect parties in alliance formation are distrust of ownership, control issues, resistance to change and fear of an undisclosed agenda.

Lloyd-Walker et al. (2014) further discovered that, the risk of sharing proprietary information, fear of future mergers, trust issues, and ego are additional factors that can affect the management of operation and performance of subcontractors in construction projects. Other benefits of project alliance among contractors in the construction industry are the proper flow of information and mutual trust that can enhance transparency in contractual relationships.

Furthermore, an increase in the level of knowledge of the project, efficient use of project resources, improved quality, and high profit in service delivery are some of the benefits of project alliance among contractors in the construction industry. Additionally, allying with other contractors in the construction industry sometimes helps construction firms overcome legal and political regulatory barriers, uncertainty in the construction market, and threats to competitiveness. So, alliance formation is a tool to overcome obstacles entrenched in a competitive environment.

RESEARCH METHODOLOGY

Research methods are the various procedures, schemes, and algorithms used in research, while research methodology is the science of studying how research is carried out. Research design entails the methods and procedures used to conduct scientific research. The study is a survey research, which uses cross–sectional survey design. Because data used in the study was made up of variables of the same sample observed at one point in time. The population of this study includes all professionals in the construction industry sector of the economy in Abuja, especially Architects, Quantity Surveyors, Contractors, Project Managers, Estate Surveyors, Civil Engineers and Builders. The sampling technique adopted for this study is the purposive sampling method. This method was used because the respondents were selected from professionals with experience in PPP projects. A total of 80 questionnaires were distributed, and 51 were returned. This represents a response rate of 64%. Data collected from the administration of the research instruments were analysed using descrcriptive statistic such as mean and relative important index (RII).

RESULTS

Challenges of Housing Delivery in Construction Projects

Table 1 shows the challenges for housing delivery as rated by the respondents. The respondents were asked to rate the challenges in order of level of importance. The result reveals that the most critical factors were the problem of land accessibility, funding and mortgage system, and the high construction cost. It was followed by poverty level, government failure due to lack of political will procedures, and high cost of building materials. The least important factors were the functional legal, regulatory framework, and developmental control respectively.

Table 1: Challenges in Affordable Housing Delivery

FACTORS	SWV	RII	Rank
High cost of construction	317	0.651	3
Developmental control	220	0.451	9
Accessibility of land in a good location	381	0.763	2
Funding and mortgage system	382	0.764	1
Government failure due to lack of political will	266	0.545	7
High cost of building materials	316	0.642	4
High population growth	268	0.543	6
Development of infrastructural facilities	274	0.571	5
Functional legal, regulatory framework	216	0.442	10
Poverty level	257	0.531	8

NB. SWV= SUM Weight Value, RII= Relative Important Index

Benefits of Alliance Formation in Construction Projects

From the results in Table 2 on the benefits of alliance formation in projects, sharing risk was ranked as the most significant benefit of alliance formation, with a Relative Importance Index (RII)of 0.80. Efficient use of available resources was ranked second with a Relative Importance Index of 0.78, and easy entry to the new market was ranked third with a Relative Importance Index of 0.71. This implies that risk sharing is the most significant benefit of alliance formation, while efficient use of available resources is also rated high. This means that the respondents understand the benefits of alliance formation in project delivery. This also corroborates the report of (Young et al.,2016), who discovered that, alliance formation could lead to improved project delivery. Alliance formation

DOI: 10.56892/bima.v7i4.541

is utilised when parties engaged with comparative risk unite to use their complementary capacity to accomplish a given task.

Table 2: Prospects in Alliance Formation for Affordable Housing Projects Delivery

S/N	*Items*	*SWV*	*RII*	*Ranking*
1	Sharing of risk in projects	401	0.802	1
2	Efficient use of available resources	392	0.780	2
3	Achieving competitive advantage	315	0.627	4
4	Ease of entry to new market environment	351	0.711	3
5	Improved quotation for new contact because of experience	282	0.562	5
6	Coordination skills and collaboration make more self-motivated	274	0.550	6
7	Less effort to supervise work because of the early involvement of the contractor	267	0.531	8
8	Joint financial support	272	0.542	7
9	Mutual trust and willingness to offer a mutually beneficial solution	228	0.447	10
10	Knowledge sharing	248	0.491	9

NB. SWV= SUM Weight Value, RII= Relative Important Index

Benefits of Project Alliance Formation to Contractors in Construction Projects

Table 3 reveals the primary motivations that drive contractors to form project alliances in construction projects. The central focus is on achieving a competitive edge through harmonious synchrony. Findings reveal that synergy for competitive advantage, sharing of risk in projects, and efficient uses of available resources were the top benefits to be driven in alliance formation in a project. Interestingly, the desire for higher profits is ranked last, suggesting a long-term perspective where sustainable advantage outweighs immediate gains. While knowledge sharing is valuable, it appears to be a secondary outcome rather than a primary objective. These findings have significant implications for the formation of alliances. For instance, it is crucial to prioritise activities that foster collaboration, exchange of expertise, and joint risk management. Building trust and promoting open communication is vital, even if transparency is not ranked as highly. Although financial benefits are not the main driving force, alliances can still make substantial contributions through improved efficiency, reduced risks, and access to new markets.

Table 3: Benefits of Project Alliance Formation Among Contractors

Benefits of Project Alliance	**SWV**	**RII**	**Ranking**
Synergy for competitive advantage	392	0.778	1
Ease of entry to new market environment	322	0.631	4
Sharing of risk in the project	382	0.757	2
Sharing of resources	315	0.622	5
Efficient use of available resources	318	0.641	3
Sharing of experience and knowledge on projects	274	0.548	6
Gaining control of regulatory barriers	272	0.541	7
Gaining control of market uncertainty	267	0.533	8
Transparency in contractual dealings on project	228	0.451	9
Higher Profit	220	0.442	10

NB. SWV= Sum Weight Value, RII= Relative Important Index

DOI: 10.56892/bima.v7i4.541

DISCUSSION AND IMPLICATION OF FINDINGS

Housing is a critical necessity for the national development of any nation, next to food and clothing. Consequently, this study examines the factors affecting housing delivery and the enabling strategies for ensuring an effective housing system. The study identifies land accessibility, funding and mortgage system, high construction cost, poverty level, government failure due to lack of political will, and high cost of building materials as the significant factors affecting housing delivery. The result reveals that, restrictive access to land and high construction cost is the most critical challenges of housing delivery, followed by low-income level for affordability and high land cost. Past studies such as Bimbola et al., (2020) and Odeh and Behm, (2010) also identified the high cost of building materials as a significant factor affecting housing delivery.

The study implies that a strong regulatory framework, access to land, monetary policies to reduce inflation and government guarantees enable effective housing delivery. The study provides valuable insights and recommendations for policymakers, practitioners, and researchers in the housing sector to address the challenges and opportunities for housing delivery in Nigeria. The study contributes to the existing literature on housing delivery by exploring the factors and strategies from a multidimensional perspective and using a mixed-methods approach. The study highlights the importance of housing delivery as a critical component of national development and social welfare and calls for more attention and action from the government and other stakeholders to improve the housing situation in Nigeria.

CONCLUSION

As a result of people relocating from rural to urban areas, limited availability of land makes it difficult to accommodate the increased urbanisation population. Thus, the government and the private sectors need to strategise to meet the increased demand for housing. Some of the challenges to housing delivery are related to the economic and political environment, the problem of high cost of acquiring land, poor remuneration and low minimum wages of workers resulting in low purchasing power that is unattractive to developers, escalating high cost of building material, high profit-driven attitudes of the private developers arising from high cost of fund or finance among others. To redress this problem, the government must create an enabling environment for the private sector to act as the engine of growth in the housing sector. Such an enabling environment, as pointed out in the body of the research, must necessarily include the reduction of interest rates and the creation of a viable secondary mortgage sector to cater for the needs of interested mortgage loan applicants, amongst other steps needed to be taking by the government to tackle the problems of housing delivery in the state. In addition, the government should create a bylaw to eradicate corrupt practices on the land approval documents.

REFERENCES

Abd-Elkawy, A.A.M. (2017). Principles of Public-Private Partnership Approach for Providing Sustainable Social Housing Projects in New Egyptian Cities (Case Study: Experience of Orascom Social Housing Project in 6 October City) *International Journal of Community and Cooperative Studies.* 5(1), 1-21

Adedeji, Y. M. D. and Olotuah, A. O. (2012). An Evaluation of Accessibility of Low-

DOI: 10.56892/bima.v7i4.541

Income Earners to Housing Finance in Nigeria. *American-Eurasian Journal of Scientific Research*, 23-31.

Amnesty International, UK (2022). *England: Housing must be Made Human Right in Law to Address SpiralingSprirallling Crisis*. www.amnesty .org.uk/homeless.

Ayeyemi, D. (2018) *Why Most PPP Housing Projects are Abandoned*, http://www.newtelegraphng.com/2018 /09/why-most-ppp-housing-projects-are-abandoned-by-expert.

Akintoye, A., Beck, M., Ajayi, O., and Oyedele, L. O. (2017). Public-Private Partnership: Risks And Opportunities in Managing Infrastructure Renewal and Development. *Routledge*.

Albaladejo, C., De La Fuente, A., and Naimzada, A. (2011). Public-Private Partnerships And Efficiency In Water Utilities: An International Analysis using DEA._ *Journal of Productivity Analysis*, 35(3), 253-265.

Bimbola, A. E., Iyabo, B. F., Babalola, A. A. and Zaki, Y. M., (2020). *Evaluating the Benefits of Project Alliance Formation among Contractors in Nigerian Construction Industry*. Proceedings of the 2nd African International Conference on Industrial Engineering and Operations Management Harare, Zimbabwe, December 7-10, 2020.

Bhattacharya, A., and Banerjee, A. (2010). Determinants of Private Participation in Infrastructure Projects: An Empirical Analysis with Reference to India._ *Applied Economics Letters*, 17(13), 909-914.

Campbell, T. (2012). Technology, Multimedia, and Qualitative Research in Education. *Journal of Research on Computing in Education,* 30**,** 122-133.

Dabak, P.D. 2014. "Public-Private Partnership: The Answer to Nigeria's Development Challenges". *Journal of Economics and Sustainable Development 5(22): 143-147*

De Millas, C., and Rodríguez-Pose, A. (2015). What Can we Learn from the Recent Decline In Public- Private Partnerships? A Meta-Regression Analysis. _ *Economic Modelling*, 49(C), 362-374.

Estache, A., Fay, M., and Tovar, C. (2013). Public-Private Partnerships (PPPs): Lessons from experience worldwide. _ World Bank Publications.

Grant, R and Baden -Fuller, C. (2011) A Knowledge Accessing Theory of Strategic Alliances," Journal of Management Studies. 1 (41), 61-84.

Ibem, E. O. (2011). The Contribution of Public-Private Partnerships (PPPs) to Improving Accessibility of Low-Income Earners to Housing in Southern Nigeria. *Journal of Housing and the Built Environment,* 26.

Iossa, E., and Piga, C. G. (2012). Determinants of Efficiency in Public-Private Partnerships: Empirical Evidence From Italian Local Public Transport Sector. Transportation Research Part E: *Logistics and Transportation Review*, 48(1), 168-180.

Lloyd-Walker B.M, Mills A.J. and Walker DHT, (2014) "Enabling Construction Innovation: The Role of a No-Blame Culture as A Collaboration Behavioral Driver in Project Alliances". *Construction Management and Economics*. (32)3, 229–245.

MacDonald C, Walker DHT and Moussa N, (2012) "Value for Money in Project Alliances" *International Journal of Managing Projects in Business*. (5)2, 311 –324.

Makinde, O. O (2014). Housing Delivery System, Need and Demand,

DOI: 10.56892/bima.v7i4.541

Environment, Development and Sustainability,16,49-69

Nwafor, I. V., Ugonobo, C. U. and Christian, O. N., (2023). Effects of Micro Economic Indicators on Cost of Building Materials in Nigeria. *African Journal of Social Science and Humanities Research.* 6(4), 166-176.

Owetumi, A., Daniel, C. and Auakar, H., (2022). Evaluating the Management PPP for the Provision of Affordable Housings in Nigeria. *Journal of Science Services and Management.* 15(4), 492-415.

Odeh, I. N., and Behm, H. (2010). Comparing Public-Private Partnership and Traditional Procurement Methods: A Case Study of Road Construction Projects in Jordan. _ *International Journal of Project Management*, 28(8), 706-715.

United Nations, (2010). *Policy Framework for Sustainable Real Estate Markets: Principles and Guidance for The Development of a Country's Real Estate Sector*. Geneva: United Nations Economic Commission for Europe Working Party on Land Administration Real Estate Market Advisory Group.

Walker D., and Rahmani F, (2016) "Delivering a Water Treatment Plant Project using a Collaborative Project Procurement Approach". *Construction Innovation* (16)2 158– 184.

Williams, K., and Dimitrijevic, M. (2014). Risk Identification and Allocation in Public-Private Partnerships: A Comparative Analysis of UK and Australian Approaches. *International Journal of Law in Context*, 10(3), 294-312.

Wolde-Rufael, Y., Smith, S., and Ahiabor, D. C. (2016). Efficiency Comparison of Public and Public-Private Partnership Infrastructure Projects in Developing Countries: A Stochastic Frontier Analysis Approach. _ Transportation Research Part E: *Logistics and Transportation Review*, 94, 196-211.

Walker D., Harley J and Mills A, (2015) "Performance of project Alliancing in Australasia: A Digest of Infrastructure Development from 2008 to 2013". *Construction Economics and Building*, (15)1, 1–18.

Young, B.K.., Hosseini, A., and Lædre, O. (2016). *"Project Alliances and Lean Construction Principles"* In: Proc. 24th Ann. Conf. of the Int’l. Group for Lean Construction, Boston, MA, USA, sect.3 pp. 33–42.