Malaysian Construction Research Journal • Volume 14, Issue 3 Special issue, Pages 203 - 217 • 2021

Document type
Article

Source type
Journal

ISSN
19853807

Publisher
Construction Research Institute of Malaysia

Original language
English

View less

Realizing sustainable building information modelling (BIM) construction projects through the adoption of relational multiparty collaborative contract

Baharom, Mohammad Haniff; Habib, Siti Nora Haryati Abdullah; Sapian, Abdul Razak

Save all to author list

[a] Kuliyyah of Architecture and Environmental Design, International Islamic University Malaysia, Kuala Lumpur, 53100, Malaysia

Abstract

The establishment of the Green Building Information Modelling (BIM) notion proclaims the aptness of BIM in fulfilling sustainable development goals. Despite the myriad benefits offered through its adoption, inexhaustive planning in accommodating the integration and collaboration among the stakeholders could render the adoption of Green BIM inefficacious. While collaborative working is also one of the stimulant factors in realizing sustainable development goals, the effectuation of a befitting collaborative working is indeed laborious. Thus, this paper discussed the concept of relational multi-party collaborative contract

(MPCC) within a BIM project in an attempt to achieve a more sustainable BIM-enabled project. The study employed a survey research method with the questionnaire distributed to individuals experienced in BIM. Using the Relative Important Index (RII) analysis, fifty-six (56) highly important relational contracting factors (RCF) for MPCC were identified. The top ranking RCFs are (1) 'open and clear communication', (2) 'conducting staff training to prepare parties with skills and knowledge' (3) use of proper communication technology device', (4) `developing information sharing procedure', and (5) 'effectuation of consent from joint-discussion & all parties to participate in discussions and meetings'. These relational contracting factors are significant in realizing more collaborative relationships among parties within BIM projects. The study also found that the relational MPCC might not only be suitable for partnering/alliancing arrangement, but could also be applied to other contracting methods. The findings provide a lesson learned for industry players to consider relational MPCC in implementing BIM projects, regardless they are 'green' projects or otherwise.

Author keywords

Building Information Modelling (BIM); Multi-party collaborative contract (MPCC); Relational contracting; Sustainable development goals

Sustainable Development Goals 2023 New

SciVal Topics

Metrics

Funding details

References (50) View in search results format >

All

Export Print E-mail Save to PDF Create bibliography

1 Abbasnejad, B., Moud, H. I.
BIM and Basic Challenges Associated with Its Definitions, Interpretations and Expectations
(2013) *International Journal of Engineering Research and Applications (IJERA)*, 3 (2), pp. 287-294. Cited 29 times.

2 Adriaanse, J.
(2016) *Construction Contract Law (Fourth Edition)*, p. 103. Cited 27 times.
London, UK: Palgrave Macmillan

3 Aibinu, A.A., Jagboro, G.O.
The effects of construction delays on project delivery in Nigerian construction industry
(2002) *International Journal of Project Management*, 20 (8), pp. 593-599. Cited 316 times.
doi: 10.1016/S0263-7863(02)00028-5
View at Publisher

4 Akadiri, O. P.
(2011) *Development of A Multi-Criteria Approach for The Selection of Sustainable Materials for Building Projects*, p. 239. Cited 82 times.
Ph.D. Thesis, University of Wolverhampton

5 Albrectsen, A.
Why Collaboration Will Be Key to Achieving the Sustainable Development Goals
(2017) *World Economic Forum*. Cited 2 times.
Retrieved at
https://bit.ly/3hFK9V8

6 Al-Ghamdi, S.G., Bilec, M.M.

Life-cycle thinking and the LEED rating system: Global perspective on building energy use and environmental impacts

(2015) *Environmental Science and Technology*, 49 (7), pp. 4048-4056. Cited 40 times.
http://pubs.acs.org/journal/esthag
doi: 10.1021/es505938u

View at Publisher

7 Alinaitwe, H., Apolot, R., Tindiwensi, D.

Investigation into the causes of delays and cost overruns in Uganda's public sector construction projects

(2013) *Journal of Construction in Developing Countries*, 18 (2), pp. 33-47. Cited 102 times.
http://web.usm.my/jcdc/vol18_2_2013/JCDC%2018(2)%202013-Art.%203%20(33-47).pdf

8 Almahmoud, E., Doloi, H.K.

Assessment of social sustainability in construction projects using social network analysis

(2015) *Facilities*, 33 (3-4), pp. 152-176. Cited 92 times.
http://www.emeraldinsight.com/info/journals/f/f.jsp
doi: 10.1108/F-05-2013-0042

View at Publisher

9 (2007) *Integrated Project Delivery: A Guide*, p. 32. Cited 451 times.
American Institute of Architecture (AIA) Sacramento: AIA National and AIA California Council

10 Andrade, C.

The Inconvenient Truth About Convenience and Purposive Samples

(2021) *Indian Journal of Psychological Medicine*, 43 (1), pp. 86-88. Cited 121 times.
https://journals.sagepub.com/home/szj
doi: 10.1177/0253717620977000

View at Publisher

11 Atkisson, A.
Multi-Stakeholder Partnerships in The Post-2015 Development Era: Sharing Knowledge and Expertise to Support the Achievement of The Sustainable Development Goals
(2015) *Background paper convened by UN-DESA*, pp. 5-6. Cited 2 times.
New York

12 Bonenberg, W., Wei, X.
Green BIM in Sustainable Infrastructure

(2015) *Procedia Manufacturing*, 3, pp. 1654-1659. Cited 43 times.
http://www.journals.elsevier.com/procedia-manufacturing
doi: 10.1016/j.promfg.2015.07.483

View at Publisher

13 Chong, H.-Y., Lee, C.-Y., Wang, X.
A mixed review of the adoption of Building Information Modelling (BIM) for sustainability

(2017) *Journal of Cleaner Production*, Part 4 142, pp. 4114-4126. Cited 248 times.
doi: 10.1016/j.jclepro.2016.09.222

View at Publisher

14 Clark, T., Foster, L., Sloan, L., Bryman, A.
(2021) *Social Research Methods (Sixth Edition)*, p. 178. Cited 5 times.
Great Clarendon Street: Oxford University Press

15 (2016) *Malaysia Building Information Modelling Report*, p. 2. Cited 2 times.
Kuala Lumpur: CIDB Malaysia

16 Currie, L.
Building Information Modelling: Its Impact on Insurance, Intellectual Property Rights and Design Liability
(2014) *Society of Construction Law. Derbyshire*, 7. Cited 10 times.

17 El-adaway, I., Abotaleb, I., Eteifa, S.
Framework For Multiparty Relational Contracting
(2017) *Journal of Legal Affairs and Dispute Resolution in Engineering and Construction*, 9 (3), p. 04517018. Cited 25 times.

18 Enshassi, A., Mohamed, S., Mayer, P., Abed, K.
Benchmarking masonry labor productivity

(2007) *International Journal of Productivity and Performance Management*, 56 (4), pp. 358-368. Cited 32 times.
doi: 10.1108/17410400710745342

View at Publisher

19 Faisol, N.
(2010) *An Investigation of Relational Contracting Norms in Construction Projects in Malaysia*, p. 97. Cited 6 times.
Ph.D. Thesis, University of Loughborough

20 Frydlinger, D., Cummins, T., Vitasek, K., Bergman, J.
(2016) *Unpacking Relational Contracts: The Practitioner's Go-To Guide for Understanding Relational Contracts*, p. 5. Cited 8 times.
Knoxville: Vested

21 Hafez, S. M., Aziz, R. F., Morgan, E. S., Abdullah, M. M., Ahmed, E. K.
Critical Factors Affecting Construction Labour Productivity in Egypt
(2014) *American Journal of Civil Engineering*, 2 (2), pp. 35-40. Cited 23 times.

22 Hossen, M.M., Kang, S., Kim, J.
Construction schedule delay risk assessment by using combined AHP-RII methodology for an international NPP project

(2015) *Nuclear Engineering and Technology*, 47 (3), pp. 362-379. Cited 73 times.
http://www.kns.org/jknsfile/v47/NET_47_3_14.pdf
doi: 10.1016/j.net.2014.12.019

View at Publisher

23 Jarkas, A.M., Bitar, C.G.
Factors affecting construction labor productivity in Kuwait

(2014) *Journal of Construction Engineering and Management*, 138 (7), pp. 811-820. Cited 254 times.
doi: 10.1061/(ASCE)CO.1943-7862.0000501

View at Publisher

24 Jiang, Y., Ma, P., Zhang, S.
Contractual Governance of BIM-Enabled Projects: Where Are We
(2018) *International Journal of Architecture, Engineering and Construction*, 7 (1), pp. 1-10. Cited 7 times.

25 Ke, Y., Gajendran, T., Davis, P.R.
Relational contracting in the construction industry: Mapping practice to theory (Open Access)

(2015) *AEI 2015: Birth and Life of the Integrated Building - Proceedings of the AEI Conference 2015*, pp. 175-184. Cited 10 times.
ISBN: 978-078447907-0
doi: 10.1061/9780784479070.016

View at Publisher

26 Khalid, R.
(2018) *NEC4 Alliance Contract Opens Door to Increased Collaboration*
Pinsent Masons
https://bit.ly/3r0Wyrf

27 Leicht, R., Harty, C.
Influence of multiparty ipd contracts on construction innovation

(2017) *Association of Researchers in Construction Management, ARCOM - 33rd Annual Conference 2017, Proceeding*, pp. 164-173. Cited 4 times.
http://www.arcom.ac.uk/conf-archive-working.php
ISBN: 978-099554631-8

28 Ling, F.Y.Y., Tan, P.C., Ning, Y., Teo, A., Gunawansa, A.
Effect of adoption of relational contracting practices on relationship quality in public projects in Singapore

(2015) *Engineering, Construction and Architectural Management*, 22 (2), pp. 169-189. Cited 20 times.
http://www.emeraldinsight.com/info/journals/ecam/ecam.jsp
doi: 10.1108/ECAM-10-2013-0093

View at Publisher

29 Lu, W., Fung, A., Peng, Y., Liang, C., Rowlinson, S.
Cost-benefit analysis of Building Information Modeling implementation in building projects through demystification of time-effort distribution curves (Open Access)

(2014) *Building and Environment*, 82, pp. 317-327. Cited 92 times.
http://www.elsevier.com/inca/publications/store/2/9/6/index.htt
doi: 10.1016/j.buildenv.2014.08.030

View at Publisher

30 Macaulay, S.
Non-Contractual Relations in Business: A Preliminary Study
(1963) *American Sociological Review*, 28, pp. 55-69. Cited 2044 times.

31 Martens, M.L., Carvalho, M.M.
Key factors of sustainability in project management context: A survey exploring the project managers' perspective

(2017) *International Journal of Project Management*, 35 (6), pp. 1084-1102. Cited 227 times.
http://www.elsevier.com/inca/publications/store/3/0/4/3/5/index.htt
doi: 10.1016/j.ijproman.2016.04.004

View at Publisher

32 Mcadam, B.
Building information modelling: the UK legal context (Open Access)

(2010) *International Journal of Law in the Built Environment*, 2 (3), pp. 246-259. Cited 66 times.
doi: 10.1108/17561451011087337

View at Publisher

33 Memon, S.A., Hadikusumo, B.H.W., Sunindijo, R.Y.
Using social interaction theory to promote successful relational contracting between clients and contractors in construction

(2015) *Journal of Management in Engineering*, 31 (6), art. no. 04014095. Cited 25 times.
https://ascelibrary.org/journal/jmenea
doi: 10.1061/(ASCE)ME.1943-5479.0000344

View at Publisher

34 Mosey, D.
(2019) *Collaborative Construction Procurement and Improved Value*, 11, pp. 211-226.
Hoboken, NJ, USA: Wiley-Blackwell

35 Mosey, D., Howard, C., Bahram, D.
Enabling BIM Through Procurement and Contracts
(2016) *King's College centre of Construction Law and Dispute Resolution Society of Construction Law Papers*, 39, p. 20. Cited 4 times.
London

36 Onyegiri, I., Nwachukwu, C., Jamike, O.
Information and Communication Technology in the Construction Industry
(2011) *American Journal of Scientific and Industrial Research*, 2 (3), pp. 461-468. Cited 22 times.

37 Patton, M.
(2002) *Qualitative Research and Evaluation Methods*, p. 230. Cited 557 times.
Q. 3rd Sage Publications; Thousand Oaks

38 (2013) *Project Partnering Contract (PPC 2000)*, pp. 1-59.
Bromley: Association of Consultant Architects (ACA)

39 Sakal, M.W.
Project alliancing: A relational contracting mechanism for dynamic projects
(2005) *Lean Construction Journal*, 2 (1), pp. 67-79. Cited 73 times.
https://www.leanconstruction.org/media/docs/lcj/V2_N1/LCJ_05_005.pdf

40 Saunders, K., Mosey, D.
PPC2000: Association of consultant architects standard form of project partnering contract
(2005) *Lean Construction Journal*, 2 (1), pp. 62-66. Cited 10 times.
https://www.leanconstruction.org/media/docs/lcj/V2_N1/LCJ_05_004.pdf

41 Siti Nora, H.A.H.
(2017) *Critical Success Factors and Contractual Risks for Private Finance 2 (PF2) Projects Implementing Building Information Modelling (BIM)*, p. 28. Cited 2 times.
Ph. D Theis, University of Salford

42 Habib, S.N.H.A., Ismail, S., Khuzzan, S.M.S.
Risk factors towards public-private partnerships (ppp) projects implementing building information modelling (bim) in the United Kingdom (UK): A lesson learnt for Malaysia
(2020) *Planning Malaysia*, 18 (4), pp. 340-351. Cited 3 times.
https://planningmalaysia.org/index.php/pmj/article/view/836
doi: 10.21837/pm.v18i14.836
View at Publisher

43 Sportschuetz, T.
(2019) *CCDC 30: Integrated Project Delivery: A Paradigm Shift*
M. Singleton Reynolds, Canada. 1

44 Syuhaida, I., Aminah, M., Soon-Han, W.
Elements Of Relational Contract in The Delivery of Public Infrastructure in Malaysia
(2012) *Journal of IBIMA Business Review*, 2012, pp. 1-11. Cited 2 times.
Y

45 Tavakol, M., Dennick, R.
Making sense of Cronbach's alpha

(2011) *International journal of medical education*, 2, pp. 53-55. Cited 6142 times.
doi: 10.5116/ijme.4dfb.8dfd

View at Publisher

46 (2016) *Charlecote: Association of Consultant Architects (ACA)*, pp. 1-25.

47 Tongco, Ma.D.C.
Purposive sampling as a tool for informant selection (Open Access)

(2007) *Ethnobotany Research and Applications*, 5, pp. 147-158. Cited 1076 times.
http://www.ethnobotanyjournal.org/vol5/i1547-3465-05-147.pdf
doi: 10.17348/era.5.0.147-158

View at Publisher

48 (2016) *Partnerships For Sustainable Development Goals: Supporting the Sustainable Development Goals Through Multi-Stakeholder Partnerships – Ensuring That No One Is Left Behind*, p. 5. Cited 4 times.
New York

49 Yeung, J.F.Y., Chan, A.P.C., Chan, D.W.M.
Defining relational contracting from the Wittgenstein family-resemblance philosophy

(2012) *International Journal of Project Management*, 30 (2), pp. 225-239. Cited 68 times.
http://www.elsevier.com/inca/publications/store/3/0/4/3/5/index.htt
doi: 10.1016/j.ijproman.2011.06.002

View at Publisher

50 Zhang, L., Huang, S., Tian, C., Guo, H.
How Do Relational Contracting Norms Affect IPD Teamwork Effectiveness? A Social Capital Perspective (Open Access)

(2020) *Project Management Journal*, 51 (5), pp. 538-555. Cited 13 times.
http://journals.sagepub.com/home/pmx
doi: 10.1177/8756972820911241

View at Publisher

About Scopus

What is Scopus

Content coverage

Scopus blog

Scopus API

Privacy matters

Language

日本語版を表示する

查看简体中文版本

查看繁體中文版本

Просмотр версии на русском языке

Customer Service

Help

Tutorials

Contact us