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REPRINTS

“Lights Under a Bushel”: A Digest of Highly Cited Papers from Construction Economics and Building

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There are times when a new editor ponders the iron triangle of quality submissions, readership, and citations, and how to improve them. It was during such a musing that a colleague from UTS/OJS pointed out that this journal had produced a suite of highly cited papers that was continuing to grow. They went on to illustrate the point with a list that stopped at a lower limit of 30 citations, observing that there was every likelihood that further good, recently published papers would continue this habit, given sufficient time (3-5 years).

Grateful for their observations I scanned the list and was buoyed by the thoughts that these papers were a product of their time (i.e. highly relevant, reflecting topics of contemporary and ongoing concern), clearly well executed – conceptually and methodologically – and written in an engaging style. They were, and self-evidently continue to be read and cited, though the issue of growing our readership continues to be a challenge.

In a world of burgeoning journal titles, many of which appear to be predatory in nature it can become necessary to remind readers of this tome that it is a valuable venue for the best of their research. The cost to publish and quality of the publication should be evident from its homepage, but that quality research within its pages can achieve high citation rates only becomes apparent once the reader searches for topics of interest to them. This digest is simply a reminder of what this journal – and those who support it with their time and effort – is all about.

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This selection of papers has been assembled from issues since the journal transferred online and adopted its current title. To reiterate, an arbitrary cut-off of 30 citations (Scopus) has been applied for the sake of brevity, though it is clear that there are more recent papers that are on target to match and exceed this citation score in the near future. Moreover, only bibliographic details and abstracts are included in this section; DOIs take the interested reader to the full paper.

Please enjoy this retrospective.

Performance of Project Alliancing in Australasia: a Digest of Infrastructure Development from 2008 to 2013

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Abstract

Project and program alliances have been an accepted form of project procurement for public infrastructure engineering projects in Australia and New Zealand (Australasia). Alliancing often provides best value and superior value for money when compared to traditional approaches such as Design and Construct, however considerable debate continues about its success and applicability. This paper reports on three studies of completed construction project alliance performance in 2008, 2010 and 2012. Consolidated findings are presented on 61 project alliances, data is analysed and emerging trends discussed. Recent government policy changes in Australia at Federal and State level have led to a decline in the number of project alliances, however, while the volume of alliance activity is declining it still represents billions of dollars of infrastructure construction work being undertaken. Results also revealed that communication and trust between the executive leadership and operational management teams was a major factor contributing to the functioning of the alliance. Furthermore, the research identifies several key factors that were necessary preconditions for successful alliances.

Keywords

Project Alliances; Australian Public Infrastructure; Project Management

Citation: Walker, D.H.T., Harley, J. and Mills, A., 2015. Performance of Project Alliancing: a Digest of Infrastructure Development from 2008 to 2013, *Construction Economics and Building*, 15(1), 1-18. DOI: <http://dx.doi.org/10.5130/ajceb.v15i1.41>

Building Information Modelling and Standardised Construction Contracts: a Content Analysis of the GC21 Contract

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Abstract

Building Information Modelling (BIM) is seen as a panacea to many of the ills confronting the Architectural, Engineering and Construction (AEC) sector. In spite of its well documented benefits the widespread integration of BIM into the project lifecycle is yet to occur. One commonly identified barrier to BIM adoption is the perceived legal risks associated with its integration, coupled with the need for implementation in a collaborative environment. Many existing standardised contracts used in the Australian AEC industry were drafted before the emergence of BIM. As BIM continues to become ingrained in the delivery process the shortcomings of these existing contracts have become apparent. This paper reports on a study that reviewed and consolidated the contractual and legal concerns associated with BIM implementation. The findings of the review were used to conduct a qualitative content analysis of the GC21 2nd edition, an Australian standardised construction contract, to identify possible changes to facilitate the implementation of BIM in a collaborative environment. The findings identified a number of changes including the need to adopt a collaborative contract structure with equitable risk and reward mechanisms, recognition of the model as a contract document and the need for standardisation of communication/information exchange.

Keywords

Building Information Modelling; Contracts; Legal Risks; Procurement; Qualitative Content Analysis

Citation: Manderson, A., Jefferies, M. and Brewer, G., 2015. Building information modelling and standardised construction contracts: a content analysis of the GC21 contract, *Construction Economics and Building*, 15(3), 72-84. DOI: <http://dx.doi.org/10.5130/AJCEB.v15i3.4608>

Lean Construction Implementation in the Saudi Arabian Construction Industry

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Abstract

The Kingdom of Saudi Arabia (KSA) has witnessed a huge increase in construction during the last two decades. However, many projects experienced time delays, cost overruns and the generation of massive amounts of waste. To address these challenges, lean construction has been introduced into the Saudi construction industry; however, it is still in its infancy. This study therefore investigates the current state of lean construction implementation in the construction industry in the KSA. The objectives are to identify: the types of construction waste, level of use of tools that support the implementation of lean construction, stages of application of lean methods, and the benefits of lean construction. To achieve these objectives, a structured questionnaire survey of 282 construction professionals was carried out. After the analysis of the collected data using mean score and Anova test, the following conclusions were made. In the construction industry in the KSA, waiting is the most common type of waste, while Computer Aided Design (CAD) is the conventional tool supporting the implementation of lean construction. Furthermore, the data suggests that lean construction is most commonly used in the construction stage of projects while customer satisfaction is the main benefit derived from lean construction practices. This study concludes that the level of implementation of lean construction in the KSA construction industry is increasing. The results will help benchmark the current state of lean construction implementation, which will enable the construction industry to identify strategies to implement lean construction in Saudi Arabia in accordance with their needs and project goals, to achieve better productivity.

Keywords

Construction Waste; Lean Construction; Lean Construction Tools; Saudi Arabian Construction Industry

Citation: Sarhan, J.G., Xia, B., Fawzia, S. & Karim, A. 2017. Lean Construction Implementation in the Saudi Arabian Construction Industry. *Construction Economics and Building*, 17:1, 46-69. <http://dx.doi.org/10.5130/AJCEB.v17i1.5098>

BIM adoption within Australian Small and Medium-sized Enterprises (SMEs): an innovation diffusion model

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Abstract

Despite the envisaged benefits of BIM adoption for SMEs, BIM in SMEs has remained an underrepresented area within the available academic literature. This study proposes and draws upon a framework grounded on innovation diffusion theory (IDT) to provide an illuminating insight into the current state of BIM and the main barriers to BIM adoption within Australian SMEs. Based on analyses of 135 questionnaires completed by SMEs through partial least squares structural equation modelling (PLS-SEM) and grounded on the proposed framework, the current state of BIM adoption and barriers to BIM adoption for SMEs are discussed. The findings show that currently around 42% of Australian SMEs use BIM in Level 1 and Level 2 with only around 5% have tried Level 3. It comes to light that lack of knowledge within SMEs and across the construction supply chain is not a major barrier for Australian SMEs. In essence, the main barriers stem from the risks associated with an uncertain return on investment (ROI) for BIM as perceived by key players in SMEs. The findings also show the validity of the framework proposed for explaining BIM adoption in Australian SMEs.

Keywords

Building Information Modelling (BIM); SMEs; Construction Industry; Innovation Diffusion; Australia

Citation: Hosseini, M.R., Banihashemi, S., Chileshe, N., Namzadi, M.O., Udaeja, C., Rameezdeen, R and McCuen, T. 2016. BIM adoption within Australian Small and Medium-sized Enterprises (SMEs): an innovation diffusion model, *Construction Economics and Building*, 16(3), 71-86. DOI: <http://dx.doi.org/10.5130/AJCEB.v16i3.5159>

Challenges, success factors and strategies for women's career development in the Australian construction industry

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Abstract

Construction is traditionally a male industry. Women have long had difficulties entering or advancing their career in construction. Evidence shows that a diversified workforce with gender balance will bring about higher levels of productivity. Despite the importance of this issue, there have been limited studies on women's career development in construction. This study aims to investigate women's career development in the Australian construction industry, with objectives to evaluate the challenges and success factors of women's career development in the construction industry and provide strategies for narrowing the gender imbalance. A mixed approach of questionnaire survey and interview were conducted with female practitioners in the construction industry. Forty-three completed questionnaires were received and 10 interviews were conducted. Stress, family-work balance, and negative perception towards women in construction were the top three challenges identified. Dedication, determination, and independency were the top three success factors of women in construction. This study recommends construction employers consider providing personal development programs and flexible working arrangement for their female employees. Significance of this study lies on contributing to understanding women's career development in construction. Findings will be useful for government and professional institutions to promulgate strategies for advancing women's career development in construction.

Keywords

Women; Construction; Career Development

Citation: Rosa, J.E., Hon, C.K.H., Xia, B. and Lamari, F. 2017. Challenges, success factors and strategies for women's career development in the Australian construction industry. *Construction Economics and Building*, 17:3, 27-46. <http://dx.doi.org/10.5130/AJCEB.v17i3.5520>

Key Factors Affecting Construction Safety Performance in Developing Countries: Evidence from Cambodia

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Abstract

Although proper safety management in construction is of utmost importance; anecdotal evidence suggests that safety is not adequately considered in many developing countries. This paper considers the key variables affecting construction safety performance in Cambodia. Using an empirical questionnaire survey targeting local construction professionals, respondents were invited to rate the level of importance of 30 variables identified from the seminal literature. The data set was subjected to factor analysis. Correlations between the variables show that five key factors underlie the challenges facing the local industry; management and organisation, resources, site management, cosmetic and workforce. It is found that the forefront construction professionals (top management and government authorities) should take more responsibilities for further improvements in safety performance on project sites. Findings and recommendations of this study may be useful to construction professional who are seeking ways to improve safety records in developing countries.

Keywords

Safety Performance; OSH; Construction Site; Cambodia; Construction Safety

Citation: Durdyev, S., Mohamed, S., Lay, M.L., and Ismail, S. 2017. Key Factors Affecting Construction Safety Performance in Developing Countries: Evidence from Cambodia. *Construction Economics and Building*, 17:4, 48-65. <http://dx.doi.org/10.5130/AJCEB.v17i4.5596>

Critical Success Factors for Building Information Modelling Implementation

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Abstract

This paper expounds the Critical Success Factors (CSFs) for BIM implementation and explore their ranking and underlying relationships. A total of 28 CSFs was identified from the review of previous studies on success factors. Survey questionnaire containing these 28 factors was used to collect data from industry practitioners in Nigeria. Benchmark metrics was developed to rank the success factors. The topmost five success factors for BIM implementation in order of importance are: standard platforms for integration and communication; cost of development; education and training; standardization (product and process); and clear definition and understanding of users' requirement. Analysis of variance shows that significant differences exist in the pattern of rating for the topmost CSFs based on turnover. Factor analysis was further adopted to group the 28 CSFs into five components, using rotated component matrix method. The five components extracted are: (i) industry stakeholders' commitment and knowledge of BIM, (ii) capacity building for technology adoption, (iii) organisational support, (iv) collaborative synergy among industry professional and (v) cultural orientation. The rankings of the CSFs have practical implication as it provides basis for refining the most significant factors that industry stakeholders should focus attention for successful implementation of BIM. In addition, the underlying relationships among the success factors identified in this study, will assist industry stakeholders to determine best strategy to adopt in implementing BIM at industry level.

Keywords

Building Information Modelling; Critical Success Factors; Practitioners, Stakeholders; Standardisation

Citation: Amuda-Yusuf, G. 2018. Critical Success Factors for Building Information Modelling Implementation. *Construction Economics and Building*, 18:3, 55-74. <https://doi.org/10.5130/AJCEB.v18i3.6000>