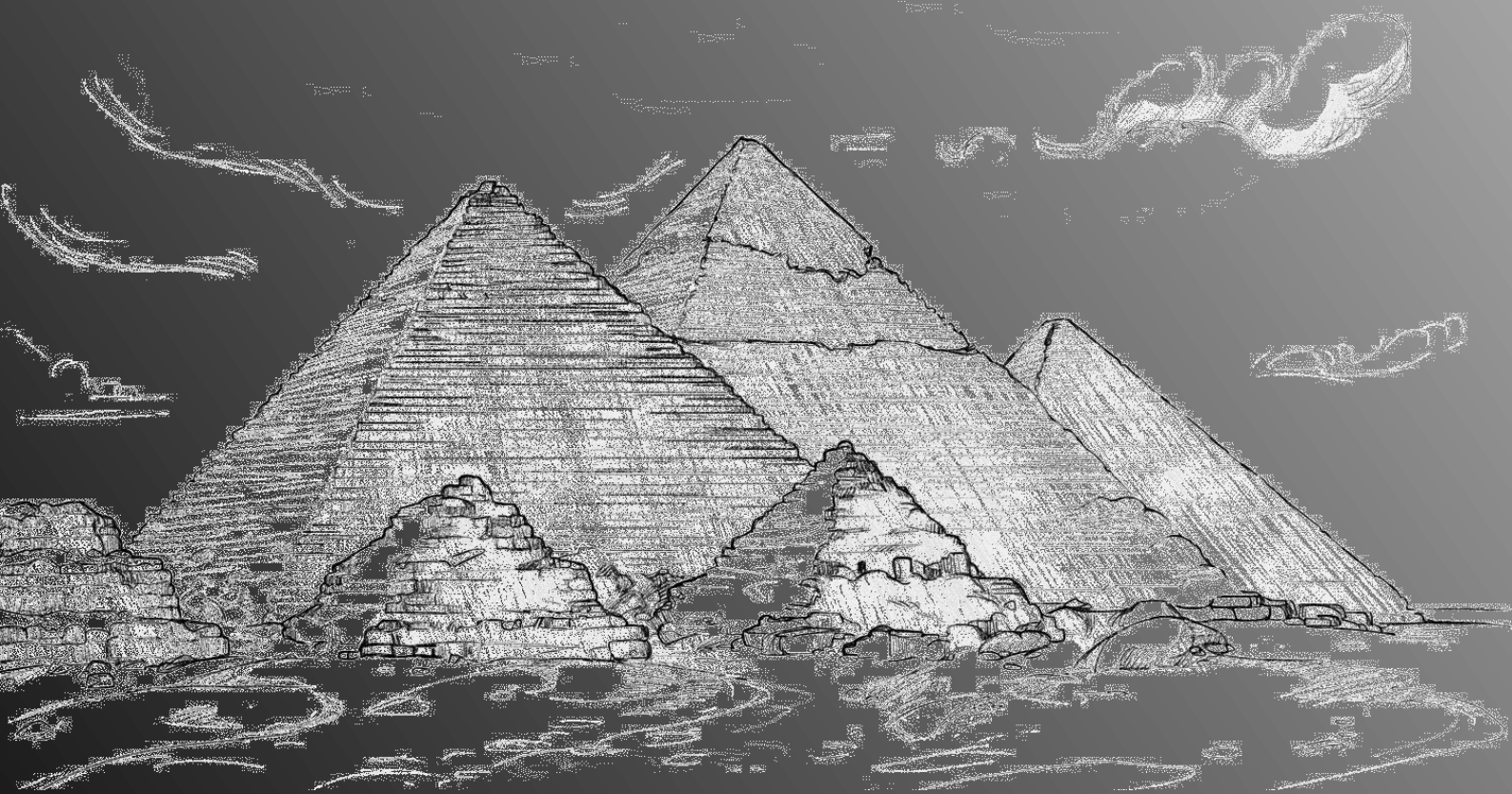


PROCEEDINGS BOOK

5th INTERNATIONAL AFRICAN CONFERENCE ON CURRENT STUDIES



February 2-5, 2022
Cairo, Egypt

Editors

Dr. Sheeba Sardar Ali
Samira KHADHRAOUI ONTUNC

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5th INTERNATIONAL AFRICAN CONFERENCE ON CURRENT STUDIES

04.02.2022 | SESSION-1 | HALL-1



Cairo Local Time: 09:00–11:30



Ankara Local Time: 10:00–12:30

MODERATOR: Asst. Prof. Dr. Abdussalam Ali Ahmed

Authors	Affiliation	Presentation title
Rania Saleh Mohammed Abdussalam Ali Ahmed	College Of Electronic Technology, BaniWalid, Libya Bani Waleed University, Bani Waleed, Libya	Iris Recognition Technology: Principles, Mechanism, and Market Forecasting (2022-2030)
Reham Ershaid Nusair Abdussalam Ali Ahmed	University Science Islam, Malaysia Bani Waleed University, Bani Waleed, Libya	The Role of Artificial Intelligence in Improving the Performance and Efficiency of Human Resource Management
Zafar Iqbal Zafar Dr. Abdul Waheed	NUST, Islamabad, Pakistan	The Development of Private Housing Schemes to Address the Housing Problem:A Case Study of Islamabad
Nadia LAARAJ Fatima-Zahra AAZI	University Mohammed V, Morocco University Hassan II, Morocco	Gender differences in IT entrepreneurship : comparing entrepreneurial intention/ behavior of women and men Evidence from Morocco
Małgorzata Waniek Rui Alexandre Castanho	WSB University, Dąbrowa Górnicza, Poland University of Johannesburg, South Africa	European Union Funding during a coronavirus pandemic
Res. TARIQ SAMIH HANANDEH Assoc. prof. Dr. Abdullah mohammad Ayedh	University Science Islam, Malaysia	The impact of the tax government on reducing tax evasion in Jordan
Ahmad ERSHAID SAMI NUSAIR Dr. Nur Hidayah Laili Reham Ershaid Nusair	University Science Islam, Malaysia	The Role of Applying Governance Principles in Reducing Financial and Administrative Corruption in Jordan
Ayman Fathullah Almabrouk Alfirjan	Bani Waleed University, Bani Waleed, Libya	THE EFFECT OF REPLACING THE POWDERED MIXTURE OF LIMESTONE AND BRICK ON THE MECHANICAL PROPERTIES OF THE CONCRETE
Fawzy Omran Mohammed El- karnawdy Abdullah Farag Mohamed Abogmiza Hajer Mohammed Makhzoum Alsouyid Khalifa Ahmed Khalifa Ajaj	Al-Asmarya Islamic University, Libya	Floristic Composition of Zygophyllum coccineum L. associates in Zliten Coast, Libya
Najah salama Mohamed Algamodi	Bani Waleed University, Bani Waleed, Libya	Society's view of divorced women The rights of women and their children in Libyan law and the consequences of cases of separation or the termination of the marital relationship

(All speakers required to be connected to the session 10 min before the session starts)

Moderator is responsible for ensuring the smooth running of the presentation, managing the group discussion and dynamics.

04.02.2022 | SESSION-1 | HALL-2



Cairo Local Time: 09:00–11:30



Ankara Local Time: 10:00–12:30

MODERATOR: **Prof. Dr. Fehim Findik**

Authors	Affiliation	Presentation title
Prof. Dr. Fehim Findik	<i>Sakarya Applied Sciences University, Sakarya, Turkey</i>	History of Powder Metallurgy
Selma Akçay	<i>Cankiri Karatekin University, Turkey</i>	ANALYSIS OF HEAT TRANSFER IN DIFFERENT CORRUGATED CHANNELS WITH BAFFLES
Ilincă Costin Tănase Maria	<i>Petroleum-Gas University of Ploiesti, Romania</i>	ANALYSIS OF STRESS STATE IN THE CASE OF STRUCTURAL TYPE ELEMENTS RELATED TO THE FIXED DOME TANK ROOF
İsmail Yılmaz Didem Yasin	<i>Eskisehir Osmangazi University, Turkey</i>	IDENTIFICATION OF GROUNDWATER POTENTIAL AREA USING REMOTE SENSING AND GIS TECHNIQUE: AN EXAMPLE FOR ESKISEHIR/İNÖNÜ PLAIN
Ammar Alazzawi Doç. Dr. Öznur Büyükturan Dr. Öğr. Üyesi Buket Büyükturan Arş. Gör. Mehmet Hanifi Kaya Uzm. Fzt. Mehmet Canlı	<i>Kırşehir Ahi Evran University, Turkey</i>	GAIT ASYMMETRIES IN ADOLESCENT IDIOPATHIC SCOLIOSIS
Bouzeriba Asma	<i>Tissemsilt University, Algeria</i>	ELASTIC ANALYSIS OF FUNCTIONALLY GRADED CYLINDERS SUBJECTED TO MECHANICAL LOADING
M. Karaoui M. Alami M. Assouag	<i>University Moulay Ismail, Morocco</i>	Synthesis and anticorrosive properties of a new epoxy polymer for carbon steel E24 in HCl 1 M.
Rodolfo Reda Alessio Zanza Maurilio D'Angelo Dario Di Nardo Luca Testarelli	<i>Sapienza University of Rome, Italy</i>	Ultrasound Imaging in Dentistry, What's New?
D.Mohanty G.Mohanta S.Shaw	<i>C.V.Raman Global University, India</i> <i>Botswana International University, Botswana</i>	EFFECT OF SOLAR THERMAL RADIATION AND MAGNETIC FIELD ON THE FLOW OF CASSON FLUID
Canser Gül Sevda Albayrak Hülya Durmuş	<i>Manisa Celal Bayar University, Turkey</i> <i>Gazi University, Turkey</i>	MOLYBDENE OXIDIZED LAYERS COATING OF WE43 MAGNESIUM ALLOY WITH RF SPUTTER METHOD
Canser Gül Sevda Albayrak Hülya Durmuş	<i>Manisa Celal Bayar University, Turkey</i> <i>Gazi University, Turkey</i>	THE EFFECT OF SURFACE ROUGHNES VALUES ON MOLYBDENE OXIDIZED LAYERS COATING OF WE43 MAGNESIUM ALLOY WITH RF SPUTTER METHOD

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04.02.2022 | SESSION-1 | HALL-3



Cairo Local Time: 09:00–11:30



Ankara Local Time: 10:00–12:30

MODERATOR: Bello Abdulkabir Opeyemi

Authors	Affiliation	Presentation title
Bello Abdulkabir Opeyemi Calistus Ayegba Oludolapo Ibrahim Olanrewaju Oladayo Afolabi Ihedigbo Kingsley Sunday	Federal University of Technology Minna, Nigeria Victoria University of Wellington, New Zealand King Fahd University of Petroleum and Minerals, Saudi Arabia	A REVIEW ON THE AWARENESS AND CHALLENGES OF BUILDING INFORMATION MODELLING FOR POST CONSTRUCTION MANAGEMENT IN THE NIGERIAN CONSTRUCTION INDUSTRY
Idris Abdullahi Bamgbade Adebisi Abosedo Bello Abdulkabir Opeyemi	Federal University of Technology Minna, Nigeria	CONSTRUCTION ORGANISATIONAL PERFORMANCE AND THE AVAILABILITY OF ARTISANS AND TECHNICIANS AS IMPACTED BY TRANSPORTATION QUICK MONEY VENTURES IN NIGERIAN CONSTRUCTION INDUSTRY - A REVIEW
Ihedigbo Kingsley Sunday Bello Abdulkabir Opeyemi Idris Abdullahi Oladayo Afolabi Semiu Mudasiru Abiodun	Federal University of Technology Minna, Nigeria King Fahd University of Petroleum and Minerals, Saudi Arabia	EFFECT OF TIME PERFORMANCE ON EDUCATIONAL BUILDING PROJECTS IN NIGERIA
Yusuf Babangida Attahiru Azman Mohamed Aliyu Abubakar Burga	Universiti Teknologi Malaysia Kebbi State University of Science and Technology, Nigeria	Engineering effects of sugar for monitoring the hydration heat on cementitious material to form a crystalline structure
Bello Abdulkabir Opeyemi Ihedigbo Kingsley Sunday Idris Abdullahi Semiu Mudasiru Abiodun Daniel Ichekani Agada	Federal University of Technology Minna, Nigeria	AN ASSESSMENT OF THE FACTORS INFLUENCING TIME PERFORMANCE OF EDUCATIONAL BUILDING PROJECTS IN ONDO STATE, NIGERIA
Daniel Ichekani Agada Calistus Ayegba Sunday Segbenu Nunayon Bello Abdulkabir Opeyemi	Federal University of Technology Minna, Nigeria The Hong Kong Polytechnic University	A REVIEW OF THE INFLUENCE OF STAFFING METHODS ON CONSTRUCTION LABOUR PRODUCTIVITY IN ABUJA
Ouldyeou Abdelhak Laid AMINALLAH Ali MERDJI	University of Mascara, Algeria	Biomechanical Evaluation Of Bone Type And Dental Implant Macro Design Effect On Stress And strain Distribution: 3D FE Analysis
Durane Tchatchouang Chougong Armel Zacharie Ekoa Bessa	SERECOMA IRAD-KRIBI, Cameroon University of Yaoundé, Cameroon	SPATIAL AND VERTICAL DISTRIBUTION OF HEAVY METALS AND RADIONUCLIDES CONTAMINATION IN LOBÉ RIVER SEDIMENTS, SOUTH-WEST CAMEROON
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Ebru AYKAN Ahmet NAVRUZ	Kayseri University, Turkey	THE EFFECT OF STUDENTS' SOCIAL MEDIA USE ATTITUDES ON ALIENATION BEHAVIOR: AN APPLICATION IN KAYSERİ

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A REVIEW ON THE AWARENESS AND CHALLENGES OF BUILDING INFORMATION MODELLING FOR POST CONSTRUCTION MANAGEMENT IN THE NIGERIAN CONSTRUCTION INDUSTRY

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Abstract

The application of Building Information Modelling (BIM) for post-construction management of a Building is still regarded as being at the infant stage compared to its application for planning, designing, and construction stage, which have been widely and adequately researched and utilized. The yardstick for measuring a successful project should spread across all the stages from planning, designing, construction, and post-construction management. Over the years, the challenges of effective and efficient management Buildings during the post-construction stage to achieve the expected gains and at the same time maintaining the standards has been a significant challenge. This paper majorly reviewed selected studies between 2011-2021 that have discussed the awareness of BIM for post-construction management and the challenges faced in the Nigerian construction industry, intending to establish the current awareness level, highlights significant challenges, and suggest ways to mitigate the challenges. The literature review analysis shows that awareness of BIM application for post-construction management is still critically low. With sets of challenges such as lack of BIM awareness and its benefit for post-construction management, cost of training, lack of government support, and fragmented nature of the industry. This study suggests rigorous awareness from the grassroots in the industry, government policy on BIM adoption, interoperation among the construction industry professionals from the planning stage to achieve the optimum goal expected during the life cycle.

Keywords: Construction industry, Awareness, BIM, challenges, post construction management.

INTRODUCTION



Generally, there is a constant rise in new technologies around the world. The adoption and application have shifted the paradigm from the conventional method of operation to a digital and more advanced approach of operation (Emmanuel et al., 2021). In this regard, the construction industry is not exempted. The World Economic Forum (2018) indicated that the construction industry accounts for 6% of the world GDP. Olanrewaju et al. (2018), on the same line, said the construction industry is projected as a significant driver of any economy, which account for about 5% increase in the world GDP growth as other sectors such as education, health, transportation critically rely on the construction industry for their operation. A report by to National Bureau of Statistics (2021), the construction industry contributed 10.17% to the nominal GDP in the first quarter of the year 2021. It indicates that the construction industry is a significant driver and contributor to developing any nation's economy. Even though the construction industry is a powerful driver of the economy, it still faces different productivity challenges arising from lack of adoption of new technologies such as Building Information Modelling (BIM) Acre and Wyckmans (2015), Internet of Things (IoT) Ghosh et al. (2020), Industry 4.0 (Newman et al., 2020) and Blockchain (Parn and Edwards, 2019). Adopting new technologies like BIM is an efficient way of ensuring information is well managed and other processes to enhance the performance of buildings life cycle (Arayici and Tah 2008; Aka et al., 2020; Olanrewaju 2021).

REVIEW OF RELATED LITERATURE

According to existing literature, application and adoption of BIM technology have the potential to eliminate budget overruns up to 40%, reduce the duration of construction by 7%, saves about 10% to 17% cost of operation, and brings nearly 50% reduction in greenhouse gas emissions during construction (Gao and Fischer, 2008; Boston Consulting Group, 2016; World Economic Forum, 2016). Therefore, the advantages of integrating BIM into the post-construction stage of operation and maintenance activities have drawn increased attention from both the industry and academia (Li et al., 2017). Studies such as (Ryal-Net and Kaduma, 2015; Edirisinghe et al., 2016, Aziz et al., 2016; Akerele and Etiene, 2016; Aka et al., 2020; Hama-Adama 2020; Olanrewaju et al., 2021; Serdar et al., 2021) have established that adoption of BIM is low which requires more awareness and adoption among the stakeholders and professionals in the built environment industry.

According to Olanrewaju et al. (2021), The yardstick for measuring a successful project should spread across all the stages from planning, designing, construction, and post-construction management. Over the years, the challenges of effective and efficient management of buildings during post-construction activities to achieve the expected gains and maintain the standards have been a significant challenge. As opined by (Olanrewaju et al., 2020; Edirisinghe et al., 2016; Kincaid, 2004), in their study BIM has been widely adopted and researched for the planning, design, and construction stage compared to the post-construction location, which is still at an infant stage. In a related study by Serdar et al. (2021), in his research assessing barriers to implementation of BIM for facility management in New Zealand built environment, despite the numerous benefits of BIM for project life cycle, its adoption during the post-construction stage is still limited. Chioma et al. (2020) BIM during the post-construction phase of the building helps to improve facilities and asset performance.

However, the low adoption of BIM for facilities and asset management reduces the value derivable from the facilities in general. Lee (2012) established in his study that the life cycle cost of a facility could be seven times higher than the initial cost of investment used in developing the facility, and more than 80% of the total cost of ownership are expended



during operation and maintenance activities (Akcamete, 2010). Other studies (Jordani, 2010; Lewis et al., 2010; Arayici et al., 2012) show that 85% of the life cycle cost of a building occurs during the post-construction stage. According to BIM-Task-Group (2015), the biggest reward for BIM lies in the operational phase of the project life cycle. The literature has identified various potential benefits of using BIM for post-construction activities such as digital data storage, controlling and monitoring energy usage, clash detection, and preventive maintenance. (Hosseini et al., 2018; Gerrish et al., 2017; Durdyev et al., 2021). Rundell (2006) stated that BIM would allow for cost mitigation during the life cycle of the building and allow facility managers to enter the decision-making process at a stage that they can influence the planning, design, and construction process. In addition, BIM provides adequate knowledge of the facility's information that will assist the facility manager during the operation life of the facility (Aziz et al., 2016).

(Ikediashi and Uyanga, 2016) in their study with the aim of the present status of BIM adoption for FM roles in Nigeria to better understand the current state of use and effectiveness in FM service delivery, the result of the shows Firstly, the usage of BIM for FM applications had a substantial impact on lifecycle cost reduction and timely service delivery. BIM for FM technologies, particularly CAFM and CMMS, is the most effective asset management, energy and safety management, and inventory management. In a related study by (Olapade & Ekemode, 2018), out of the thirty-seven (37) FM that was assessed on the awareness and utilization of BIM for FM practices, only two (2) are currently adopting BIM for their operation, this shows a low level of adoption of BIM for FM in Lagos. The outcomes of this study provided industry stakeholders with information on the level of knowledge and use of BIM for FM practice in Nigeria, allowing them to gain insight into the potential integration of BIM with FM practices in emerging nations. Originality/value: The report is a ground-breaking study of BIM for facilities management awareness and implementation in an expanding property market like Nigeria. Considering the available literature, it is apparent that their urgent need to explore the adoption of BIM for post-construction activities has been lacking for better facility performance.

METHODOLOGY

This study adopts data collection by reviewing related literature sourced online from Elsevier, Google Scholar, Emerald, Research Gate, and Google search, where various studies were shown. The author extensively reviewed the related literature to determine the awareness and challenges of BIM for post-construction management. The search keywords were initially limited to the space of Nigeria "Adoption of BIM for post-construction management in Nigeria" "Adoption of BIM for facility management in Nigeria" after the search, the result shows that very scanty studies relating to Nigeria. The investigation was later re-adjusted to capture more expansive space without any country or area limitation. Search keywords "Adoption of BIM for post-construction management" Adoption of BIM for facility management" were used to get more related materials for this study.

DISCUSSION

The construction industry can increase and mitigate its productivity challenges by adopting new technologies such as BIM. The construction industry forms an integral part of developing any nation's economy as other sectors rely heavily on the construction industry to execute their daily or routine activities and operations. In terms of GDP, the construction industry is a significant contributor to a nation's economy globally, and the contributed GDP is projected to sour higher in recent years. Adoption of intelligent and digital technologies



can enhance the efficiency of any industrial operation, which will lead to an increase in productivity. The construction industry is being faced with challenges regarding productivity. If the construction industry globally can record just a 1% increase in productivity, it will realize a \$1b. BIM on its whole has no single unanimously accepted definition as different experts and bodies coin their definition based on their view and use for its operation. BIM technology is designed to be utilized throughout the project life cycle from planning to design, construction, and post-construction. It is a crucial stage of any project life cycle as more than 80% of the total cost incurred on a project during its life cycle is expended at this stage. More so, the clients or occupants enjoy the benefits of their investment at this stage. Globally, BIM tends to have been more adopted for planning, design, construction. However, the most crucial phase has been deprived of the benefits of BIM, which, if adopted and implemented, will gradually and subsequently over time eliminate the traditional method of managing the post-construction activities, which have over time results in time wastage, energy waste, loss of return on investment, error in data entry due to manual inputting among others. In the context of Nigeria, the construction industry adoption and implementation of BIM is critically low due to different significant barriers such as lack of awareness, cost of software and training, industry resistance to adopting new technologies, and lack of legislative support. It has been reported that very few organizations are adopting BIM gradually in Nigeria. However, adoption is still limited to the planning, design, and construction, leaving post-construction behind. Aside from the listed barriers above, adoption of BIM for post-construction suffers other unique challenges such as lack of study in the area and lack of knowledge on the benefit of BIM for post-construction management. Studies regarding BIM for post-construction in the context of Nigeria are very scanty and almost negligible; the area requires more rigorous studies to be carried out.

CONCLUSION

This study further ascertains the existing literature that adoption of BIM is low globally in all phases of its applications. The developing countries are still struggling to adopt the BIM software compared to some developed countries such as China, the United Kingdom, and the United States, which applies to Nigeria where the knowledge of BIM for post-construction management is much lower as a result of lack of awareness and studies to look into the challenges battling this unique stage of the project. Hence, this study suggests rigorous awareness, especially among the concerned professionals and stakeholders, establishing BIM knowledge and training from the grassroots, usually from the tertiary institutions and related professional bodies, and enacting government policy encouraging or mandating its adoption. Lastly, more studies should be carried out to create an avenue to make general claims and assumptions.

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