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ASSESSING BIM KNOWLEDGE AMONG CONSTRUCTION PROFESSIONALS IN SRI LANKA: CHALLENGES AND OPPORTUNITIES

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ABSTRACT

Building Information Modelling (BIM) is increasingly changing the way construction projects are designed, managed, and delivered around the world. However, BIM implementation in the Sri Lankan construction industry remains limited, and the level of professional awareness is still developing. This study aimed to assess BIM awareness among construction professionals in Sri Lanka and identify strategies for increasing BIM awareness among professionals. A comprehensive literature review was carried out, followed by a structured questionnaire survey distributed among construction professionals from different disciplines in Sri Lanka. The collected data were analyzed using the Relative Importance Index (RII) method to identify the significance of responses. The findings revealed that although many professionals are aware of BIM concepts, only a limited number have received formal training or applied BIM in their professional practice. BIM usage was mainly limited to 3D modelling, with limited use of advanced BIM applications. The most significant barriers identified were the high cost of BIM training and certification, limited BIM training programs, and the shortage of experienced BIM trainers in Sri Lanka. The main strategies identified included introducing more BIM courses in university curricula, increasing professional training opportunities, and encouraging companies to provide workplace-based BIM training to improve BIM awareness and adoption. Addressing these barriers and implementing the identified strategies can help to promote BIM adoption in the Sri Lankan construction industry.

Keywords: *Awareness; Barriers; BIM; Strategies; Sri Lanka.*

1. INTRODUCTION

Building information modeling, also known as BIM, is one of the most promising new developments in the Architecture, Engineering, Construction and Operation (AECO) sector (Charef et al., 2019). BIM has been shown to increase efficiency, lower costs, and improve collaboration in the construction industry (Kineber et al., 2023). Siriwardhana et al. (2018) state that BIM is a game-changing paradigm that enhances the efficiency and effectiveness of the AECO industry, enabling the delivery of cost-effective, high-quality

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products while significantly benefiting AECO sectors worldwide. Rogers et al. (2015) show that the adoption of BIM has transformed the construction sector. They highlight that some of the many benefits associated with employing BIM for construction projects include increased profit with reduced expenses and on-time project completion. The literature currently in publication claims that there are several BIM dimensions, from 2D to 10D, with an emphasis on various elements like sustainability, maintenance, and costs (Kaushalya et al., 2024). BIM has many advantages for the building sector. It improves disciplinary coordination, which lowers mistakes and rework (Azhar, 2011). While clash detection tools find conflicts before construction starts, BIM's 3D visualization capabilities help stakeholders understand project designs (Sacks et al., 2018). Mahdi and Ali (2019) show that the BIM technique can effectively address construction issues in the Iraqi AEC industry by reducing material waste and risks. According to them this approach improves project performance, increases customer value, and benefits the national economy by lowering material waste and increasing overall value. Accurate quantity take-offs and cost estimation enhance cost control, and 4D and 5D simulations facilitate improved financial forecasting and project planning (Abanda et al., 2018). Despite these advantages, the Sri Lankan construction sector lacks understanding and implementation of BIM, with many professionals unaware of its potential benefits (Kaushalya et al., 2024). As a result, it limits the ability of industry to adopt new technologies and compete globally.

The aim of this study is to assess BIM awareness among construction professionals in Sri Lanka and identify strategies to enhance BIM awareness within the industry. Although BIM adoption and implementation have been widely studied around the world, there has been limited research into BIM awareness among Sri Lankan construction professionals. Existing research in Sri Lanka has primarily focused on the technical aspects of BIM and its application or benefits in specific projects, rather than assessing the overall level of industry awareness, preparedness, and related challenges. Therefore, a clear understanding of how construction professionals perceive BIM and the barriers affecting its wider awareness and adoption is still lacking. This study seeks to close this gap by assessing the current level of BIM awareness among Sri Lankan construction professionals, identifying barriers to BIM awareness, and proposing appropriate strategies for improving BIM knowledge and adoption in the Sri Lankan construction industry.

2. LITERATURE REVIEW

2.1 BIM AWARENESS AND ADOPTION IN THE CONSTRUCTION INDUSTRY

BIM is one of the most significant technological advancements in the Architecture, Engineering, and Construction (AEC) industry. The National BIM Standard-United States defines BIM as "the digital representation of the physical and functional characteristics of a facility" (Patel, 2022). BIM is both a software application and a collaborative process that allows project stakeholders to create, manage, and exchange project information throughout the course of a construction project. According to Eastman et al. (2008), BIM is a highly promising development in the construction industry because it enables the creation of precise digital models containing geometric, technical, procurement, and construction-related information. The growing global adoption of BIM demonstrates that its benefits are becoming more widely recognized in

the construction industry. BIM can help with project coordination, design conflicts, stakeholder communication, rework, and decision-making during project execution. Because of these benefits, building owners, contractors, consultants, and government agencies have increasingly encouraged the use of BIM in construction projects. According to Eastman et al. (2008), BIM contributes to higher project quality, shorter project durations, and better cost control, making it an effective solution for addressing inefficiencies in traditional construction practices.

Several countries have already recognized the transformative potential of BIM and incorporated it into national construction practices and policies. Babatunde et al. (2020) state that many countries around the world acknowledge the ability of BIM to modernize and improve the performance of the construction industry. However, the level of BIM adoption varies significantly across countries, depending on technological infrastructure, industry readiness, government support, and professional awareness. Developed countries such as the United Kingdom, the United States, Germany, France, and Sweden have achieved relatively high levels of BIM implementation as a result of strong policy support and industry investment. In 2014, France launched a national BIM initiative to support the development of 500,000 housing units using digital construction technologies, allocating more than €20 million to the digital transformation of the construction industry (Shah, 2025). Similarly, McGraw Hill Construction (2014) recognized the United States as a global leader in BIM implementation. According to their findings, BIM adoption in North America increased from 28% to 71% between 2007 and 2012. Similar adoption trends were observed in the United Kingdom, where architects and contractors implemented BIM at rates of 70% and 74%, respectively. These statistics show an increasing reliance on BIM technologies in developed construction industries.

Charef et al. (2019) investigated BIM adoption in 28 European Union countries and discovered that BIM implementation policies differ significantly across Europe. Their findings revealed that 25% of European countries had already mandated BIM implementation, with another 25% planning to do so in the near future. However, several countries lacked clear implementation plans and national BIM strategies. This demonstrates that, even within developed regions, BIM implementation varies according to industry conditions and government priorities. Although BIM adoption has increased rapidly in developed countries, implementation in developing countries remains limited. Ismail et al. (2017) noted that, while developed countries have gradually integrated BIM into construction practices, many developing Asian countries continue to have low levels of BIM implementation.

2.2 BIM ADOPTION IN THE SRI LANKAN CONSTRUCTION INDUSTRY

Despite growing global interest in BIM technologies, the Sri Lankan construction industry is still in the early stages of adopting them. The Sri Lankan construction industry continues to rely heavily on traditional construction techniques and project management methods. However, as construction projects become more complex and there is a greater demand for efficient project delivery, more advanced digital solutions such as BIM become necessary. According to Epasinghe et al. (2018), interoperability issues, insufficient awareness, and low levels of industry readiness continue to limit BIM adoption in Sri Lanka. According to their findings, many construction organizations continue to struggle with integrating BIM into existing workflows and project management practices. Nonetheless, the researchers emphasized that BIM has the

potential to improve collaboration, communication, and information sharing among project stakeholders across the entire project lifecycle.

Recent studies conducted in Sri Lanka have highlighted the potential benefits of BIM implementation in local construction projects and consulting practices. According to Samaraweera et al. (2025), BIM improves project visualization, collaboration, coordination, and project management efficiency, as well as the competitiveness of construction consultancy firms. Similarly, Rathnasiri and Jayasena (2022) stated that Green BIM can promote sustainable construction practices in Sri Lankan construction by optimizing building performance, increasing energy efficiency, and improving facilities management. The importance of digital transformation within the Sri Lankan construction sector has become increasingly significant in recent years. According to Fathima et al. (2024), the construction sector contributes significantly to GDP growth, job creation, and infrastructure expansion in Sri Lanka. However, the researchers discovered several industry-related issues, such as outdated design approaches, reliance on traditional technologies, and ineffective stakeholder communication during critical project stages. These limitations emphasize the importance of using digital technologies like BIM to improve overall project performance and industry productivity. Although awareness of the benefits of BIM has gradually increased among Sri Lankan professionals, Kaushalya et al. (2024) found that BIM implementation in the country remains relatively slow. The study suggests that, while industry professionals recognize the benefits of BIM technologies, practical adoption remains limited due to technical, organizational, and financial challenges.

2.3 BARRIERS TO BIM AWARENESS AND ADOPTION

Several studies have identified various barriers to BIM awareness and adoption in the construction industry. According to Zaia et al. (2023), the most significant barriers to BIM implementation are a lack of BIM specialists, insufficient knowledge, and reliance on traditional contracting methods. These barriers are especially common in developing countries, where digital transformation of the construction industry is still slow. Ismail et al. (2017) noted that factors such as low awareness, insufficient technical knowledge, high implementation costs, a lack of training opportunities, and insufficient technological infrastructure keep hindering BIM adoption in many developing Asian countries. Aibinu and Venkatesh (2014) identified resistance to change and a lack of awareness about the benefits of BIM as major barriers to its implementation in Nigeria.

In the Sri Lankan context, Epasinghe et al. (2018) identified interoperability issues, insufficient technical knowledge, and low industry readiness as major barriers to BIM implementation. Many organizations continue to struggle with integrating BIM technologies into their existing systems and project workflow. Furthermore, the scarcity of skilled BIM professionals presents challenges for organizations attempting to implement BIM in construction projects. According to Kaushalya et al. (2024), resistance to innovation, a lack of standardized BIM guidelines, insufficient training opportunities, financial limitations, and organizational challenges continue to be significant barriers to widespread BIM adoption in the construction sector of Sri Lanka. The lack of clear national BIM standards and implementation frameworks has slowed the shift from traditional construction practices to digital construction methods. Another significant barrier to BIM adoption is a lack of awareness about the long-term benefits of BIM implementation. Al-Kazee et al. (2025) stated that insufficient industry knowledge and

resistance to changing traditional working practices continue to hinder BIM adoption in many developing countries. As a result, construction professionals may be hesitant to invest in BIM technologies because of concerns about implementation costs, training requirements, and return on investment.

2.4 STRATEGIES TO ENHANCE BIM AWARENESS

Several researchers have proposed various strategies to increase BIM awareness and adoption in the construction industry. One of the most commonly recommended strategies is to provide BIM-related education and training opportunities for students and industry professionals. Kaushalya et al. (2024) emphasized that universities, professional institutions, and training organizations play an important role in improving BIM knowledge and technical competencies among current and future construction workers. Kaushalya et al. (2024) proposed several additional strategies to support BIM implementation in Sri Lanka, including increasing government support for BIM adoption, negotiating financial support for software and hardware investments, and offering free trials of BIM software. The researchers also emphasized the importance of holding in-person orientation and technical support sessions to help organizations with BIM software installation and implementation processes. Furthermore, improving industry collaboration and awareness initiatives can have a significant impact on BIM adoption. According to Samaraweera et al. (2025), improving client awareness, promoting digital transformation, and increasing organizational readiness can all help to facilitate BIM integration within consulting firms. Awareness campaigns, industry conferences, and knowledge-sharing platforms can help professionals understand the long-term benefits of BIM implementation. Such initiatives can reduce implementation challenges and encourage construction firms to more effectively integrate BIM technologies into their operations.

3. METHODOLOGY

This study used a quantitative research approach to assess BIM awareness among Sri Lankan construction professionals. According to Denscombe (2010), quantitative research allows researchers to identify patterns and relationships between variables by analyzing data from a large sample. This approach was deemed appropriate for the current study because it allowed for the systematic and consistent collection and analysis of data. A structured questionnaire survey was used as the primary data collection method. The questionnaire was selected because it is an effective tool for gathering a wide range of opinions and experiences from respondents within a standardized format. The questionnaire had four major sections: demographic information, BIM awareness and adoption, barriers to BIM awareness, and strategies for increasing BIM awareness. The barriers and strategies included in the questionnaire were identified after a thorough review of previous BIM-related studies conducted both globally and in Sri Lanka. To obtain measurable and comparable responses, the questionnaire primarily used multiple-choice and Likert scale questions.

The questionnaire was distributed online via Google Forms to ensure greater accessibility and convenience for respondents from various geographical areas of Sri Lanka. The questionnaire was distributed via LinkedIn and email communication to increase response rates and obtain responses from professionals representing various disciplines in the construction industry. The target population of the study consisted of Sri Lankan

construction professionals involved in the planning, design, construction, and management stages of construction projects where BIM tools and processes are considered relevant. The respondents included architects, civil engineers, quantity surveyors, project managers, MEP engineers, and academic staff engaged in the Sri Lankan construction industry. Participants from various educational backgrounds, including diplomas, Higher National Diplomas (HNDs), undergraduate and postgraduate degrees, were considered eligible for the study if they were involved in construction-related professional or academic activities.

The inclusion criteria of the study consisted of professionals engaged in the Sri Lankan construction industry or construction-related academic field and willing to participate in the questionnaire survey. Individuals who did not participate in construction-related professional or academic activities were excluded from the study. The non-probability convenience sampling technique was used to recruit participants due to the accessibility and availability of respondents through professional networks and online communication platforms. The sample size for the study was determined using Cochran's formula to ensure an adequate number of responses for reliable data analysis.

$$n_0 = (Z^2 \times p \times q) / e^2 \quad (01)$$

Where n_0 is the sample size for an infinite population, Z is based on the confidence level and considered to be 95%, so Z-score = 1.96, p is the estimated proportion (assumed to be 0.5), and e is the margin of error, which is taken to be 0.1.

$$n_0 = (1.96^2 \times 0.5 \times 0.5) / 0.1^2 = 96.04$$

As a result, the minimum sample size is approximately 96 respondents. This sample size was chosen to ensure that the collected data was statistically significant and representative of the construction professional population in Sri Lanka.

4. FINDINGS AND DISCUSSION

A total of 392 invitations were sent, and 98 responses were received, for a response rate of approximately 25%. A total of 98 valid replies were collected and analyzed. The survey results are presented as descriptive statistics for demographic responses and BIM awareness responses.

4.1 DEMOGRAPHIC RESPONSES

Among the valid responses, quantity surveyors were the largest professional category among respondents, accounting for 70.4% of the total. Civil engineers (14.3%) were the second most represented group, followed by academic staff (8.2%), project managers (3.1%), architects (1.0%), and MEP engineers (1.0%). Furthermore, individuals classified as "Others" (2.0%) included professionals such as interior designers, demonstrating that BIM is relevant outside typical construction positions. Table 1 shows the participant's experience in the construction industry. The majority of respondents had less than 5 years of experience (64.29%). This was followed by those with 5-10 years of experience (25.51%). These two categories together account for the majority of the sample, confirming that the data represents the perspectives of early- to mid-career professionals. A smaller proportion of the sample reported having 10 years or more of experience (10.20%), which provides value by incorporating more seasoned opinions.

Table 1: Years of experience among professionals

Years of Experience	Percentages
Less than 5 years	64.29%
5-10 years	25.51%
10 years and above	10.20%

4.2 BIM AWARENESS AND ADOPTION IN SRI LANKA

Table 2 shows the respondents' self-reported familiarity with BIM. The majority of participants stated that they apply BIM on a limited basis (45.9%), implying that while awareness exists, full integration into daily processes is still developing. The second largest group had heard of BIM but had never used it (34.7%), indicating that there is a significant group of people who are conceptually aware of BIM but lack hands-on experience. A smaller but significant proportion of respondents reported using BIM on a regular basis (18.4%), showing a rising user base with practical expertise. Only 1% of respondents said they had never heard of BIM, indicating that BIM awareness is practically universal among surveyed professionals.

Table 2: Level of BIM familiarity

Level of BIM Familiarity	Percentages
Never heard of BIM	1.0%
Have heard of it but never applied it	34.7%
Apply it on limited basis	45.9%
Apply it regularly	18.4%

Table 3 demonstrates that the majority of participants (41.84%) had not received formal BIM training but expressed an interest in doing so. This indicates a strong desire to learn and improve, which might be harnessed through targeted training activities. The second-largest group had attended training but were not certified (30.61%), followed by those who were formally certified (25.51%), indicating a growing number of professionally recognized BIM practitioners. Only 2.04% reported no interest in BIM training, indicating little resistance to upskilling in this area.

Table 3: Training and certification in BIM

Formal BIM Training	Percentages
No, not interested in BIM training	2.04%
No, but interesting in training	41.84%
Yes, attended BIM training but not certified	30.61%
Yes, certified BIM	25.51%

As indicated in Table 4, the majority of respondents (45.9%) stated that they had no prior experience with BIM. Those with less than 1 year of experience were the second largest group (27.6%), followed by those with 1-5 years of experience (23.5%). Only 3.1% had 6-10 years of expertise, indicating that experienced BIM users remain rare in the country. This research underscores the need of having more hands-on experience with BIM procedures, tools, and workflows.

Table 4: Years of experience in BIM usage

Years of BIM Experience	Percentages
No experience	45.9%
Less than 1 year	27.6%
1-5 years	23.5%
6-10 years	3.1%

As shown in Table 5, spreadsheets (e.g., MS Excel) are still the most popular approach for quantity takeoff (52.0%). This demonstrates a strong preference for familiar tools and processes that are simple to use and well understood. The second most popular option was specialist measurement software like CostX or Cubicost (38.8%), which provides a more automated and efficient approach, particularly in BIM-integrated environments. A smaller percentage still uses traditional/manual methods, accounting for only 9.2%, demonstrating a gradual drop in manual activities.

Table 5: Preferred method for quantity takeoff

Approach to Quantity Takeoff	Percentages
Traditional/ manual approach (pen and paper)	9.2%
Spreadsheets for calculations	52.0%
Specialist measurement software (e.g., CostX, Cubicost)	38.8%

When questioned about the most advanced level of BIM practice, 3D modeling was the most popular (41.8%), as illustrated in Table 6. This is consistent with global trends, where 3D visualization is often the first step into BIM workflows. The second most practiced level was 2D drafting (36.7%), indicating a continued dependence on traditional CAD technologies. 5D BIM (cost estimation) ranked third (15.3%), followed by 4D BIM (time/scheduling) (4.1%). Only a few respondents had worked with 6D BIM or above (2.0%), which includes sustainability and facility management. This pattern demonstrates that, while BIM is present, it is primarily used in early-stage applications rather than advanced, integrated levels.

Table 6: Maximum BIM level practiced

Highest BIM Level Achieved	Percentages
2D CAD for documentation without BIM integration	36.7%
Creating 3D models without additional BIM dimension	41.8%
4D BIM (time/ scheduling)	4.1%
5D BIM (cost estimation)	15.3%
6D BIM or higher	2.0%

4.3 BARRIERS TO BIM AWARENESS

Identifying and understanding the primary barriers to increasing awareness and acceptance of BIM is critical for developing effective strategies. In this study, respondents were asked to rate a series of potential barriers on a 5-point Likert scale ranging from Strongly Disagree to Strongly Agree. The factors were rated on a five-point Likert scale, with a weight of 1 for "strongly disagree," 2 for "disagree," 3 for "neutral," 4 for "agree," and 5 for "strongly agree". Table 7 lists the most common barriers to BIM awareness and

acceptance. The Relative Important Index (RII) is calculated using the formula in equation (2) to determine relative relevance of each barrier.

$$RII = \frac{\sum W}{AN} \qquad (02)$$

Where W represents the weight given to each factor by the respondents, A is the highest weight on the Likert scale, and N is the total number of respondents. The RII value ranges from 0 to 1. A higher value indicates that the factor is more important than a lower value. The calculated RII values were then used to sort the factors from most to least significant.

Table 7: Barriers to increasing awareness and acceptance of BIM

Barriers	**Frequency**					**Overall**	
	1	2	3	4	5	RII	Rank
High cost of BIM training and certification.	20	44	20	9	5	0.733	1
Limited BIM training programs.	5	6	19	56	12	0.731	2
Shortage of experienced BIM trainers in Sri Lanka.	5	14	14	44	21	0.727	3
Employers do not support or sponsor BIM training.	2	11	28	45	12	0.71	4
Universities provide little support for BIM education.	2	24	19	41	12	0.676	5
Lack of BIM research.	6	19	25	38	10	0.655	6
Lack of trust in new technology.	4	31	28	23	12	0.616	7
BIM is perceived as a difficult tool to learn.	10	28	24	28	8	0.592	8

The RII findings identified the high cost of BIM training and certification as the most significant barrier. This suggests that budgetary constraints remain a significant barrier, particularly for individuals and smaller companies with limited training budgets. The limited availability of BIM training programs came in second, indicating a vacuum in the local education and professional development scene. While interest in BIM grows, a lack of structured and accessible training choices makes it difficult for professionals to improve their skills. The shortage of experienced BIM trainers in Sri Lanka was identified as the third-highest barrier, further intensifying the training challenge. Without a sufficient number of experienced instructors, even existing training programs may fall short in terms of quality or practical applicability. The lack of employer support or sponsorship for BIM training, ranked fourth, indicates that many businesses have yet to grasp the long-term worth of BIM investment, leaving the individual to bear the whole weight of professional growth.

Additionally, the limited integration of BIM in university curricula, placed fifth, indicates that many graduates enter the workforce without adequate exposure to BIM concepts or tools. This educational gap lays a fragile basis for industrial adoption. The lack of BIM-related research, which placed sixth, contributes to the poor progress by providing limited evidence-based insights and locally relevant case studies, lowering both awareness and confidence in BIM technology. While cultural factors also play a role, lack of trust in new technologies was ranked seventh, indicating that a portion of the industry remains hesitant to adopt BIM due to unfamiliarity or fear of change. Interestingly, the belief that BIM is a difficult tool to learn was the lowest-ranked barrier. This implies that, while some may

be frightened by its complexity, the majority of respondents do not see technical difficulties as the key obstacle; rather, they are constrained by external factors such as access, cost, and institutional support.

4.4 STRATEGIES TO ENHANCE BIM AWARENESS

Using a 5-point Likert scale, respondents were given with several strategies to investigate successful methods for increasing BIM awareness in Sri Lanka. The responses were analyzed using the Relative Importance Index (RII) method to identify the most strongly recommended approaches.

Table 8: Strategies to increasing awareness and acceptance of BIM

Strategies	Frequency					Overall	
	1	2	3	4	5	RII	Rank
More universities should offer BIM courses.	4	1	11	49	33	0.816	1
More professional BIM training programs are needed.	3	3	8	53	31	0.816	1
Companies should provide in-house BIM training.	4	1	10	52	31	0.814	3
More affordable BIM software access for students and trainees.	3	6	11	40	38	0.812	4
Clients should be educated on BIM benefits.	2	3	13	52	28	0.806	5
Government should introduce policies to promote BIM.	3	5	10	52	28	0.798	6

The analysis indicated that two strategies were similarly ranked at the top: expanding BIM courses in universities and providing more professional BIM training programs. This significant preference demonstrates that education remains the cornerstone for increasing BIM awareness. Respondents believe that exposure to BIM principles should begin at the academic level, with universities playing an important role in educating graduates for a BIM-integrated sector. Simultaneously, there is an urgent need for structured, accessible, and continuous professional development courses to upskill those already engaged in the construction industry. The strategy of providing in-house BIM training came in third. This finding highlights the importance of organizational responsibility in promoting continuous learning. Many professionals may be willing to embrace BIM if their employers play an active role in training and equipping them with the necessary skills.

Providing more affordable access to BIM software for students and trainees came in fourth, indicating that the high cost of BIM software remains a barrier to both learning and practical application. Respondents agreed that software accessibility is critical, particularly for young professionals and students who would otherwise be excluded due to financial constraints. Interestingly, the recommendation to educate clients on the benefits of BIM was ranked fifth. While clients are important decision-makers in construction projects, the lower ranking may indicate that respondents prioritize internal capacity-building over external awareness efforts. Nonetheless, client understanding and demand for BIM can be a powerful motivator for its widespread adoption throughout the industry. Finally, the suggestion that the government should introduce policies to promote BIM received the lowest rank. While this does not mean that policy intervention is

unimportant, it may indicate a lack of urgency or trust in government action. Alternatively, respondents may believe that change should be driven by educational institutions and industry stakeholders before government intervention is effective.

In conclusion, the results show that education, training, and accessibility are the most effective strategies for raising BIM awareness. Academic curricula, expanded professional training, and improved access to tools can significantly improve the industry's readiness to adopt BIM. Organizational and institutional efforts must collaborate to create a supportive environment for BIM learning and practice.

4.5 PREFERRED METHOD FOR LEARNING BIM

Table 8: Preferred method for learning

Preferred Method for Learning	Percentages
Formal university education	17.3%
Online courses and self- learning	28.6%
Workplace training and workshops	49.0%
Conference and industry events	3.1%
Other	2.0%

Participants were asked about their preferred ways to learn about BIM. The majority opted for workplace training and workshops (49.0%), indicating that professionals value learning through real-world experience and hands-on sessions. This was followed by online courses and self-learning (28.6 %), indicating that many people prefer flexible, self-paced learning methods. Formal university education (17.3%) followed, emphasizing the continued importance of academic involvement. Conferences and industry events (3.1%) were less popular, and only a few people chose other methods (2.0%). These responses clearly demonstrate that most professionals prefer practical, accessible learning methods that can be applied directly to their workplaces. It also implies that BIM education should be more prevalent in academic and professional settings.

5. DISCUSSION

The findings of this study indicate that BIM awareness among Sri Lankan construction professionals is gradually increasing, although practical implementation remains limited. This finding is consistent with previous research, which found that BIM adoption in Sri Lanka is still in its early stages due to limited industry readiness, insufficient technical knowledge, and organizational challenges (Epasinghe et al., 2018; Kaushalya et al., 2024). While many professionals are aware of BIM concepts and benefits, the use of BIM in projects remains relatively low. The findings further indicate a difference between BIM familiarity and practical BIM experience among respondents. While many participants reported being familiar with BIM or having used it on a limited basis, a significant proportion stated that they had no prior BIM experience. This could indicate that BIM awareness among construction professionals is frequently based on theoretical understanding or limited exposure rather than ongoing practical application. The findings also show that awareness alone does not always lead to regular BIM implementation in construction practice. The study also found that BIM usage is primarily limited to 3D modeling, with limited use of advanced BIM dimensions such as 5D and 6D. Similar findings were found by Ismail et al. (2017), who stated that BIM implementation in

developing countries is frequently hampered by a lack of training opportunities, technical expertise, and high implementation costs.

According to the RII analysis, the most significant barriers to BIM awareness and adoption are the high cost of BIM training and certification, as well as the limited availability of BIM training programs. These findings support previous research conducted both globally and in Sri Lanka, which found that financial constraints and a lack of educational support remain major barriers to BIM implementation (Kaushalya et al., 2024; Zaia et al., 2023). However, respondents did not strongly agree that BIM is difficult to learn or that a lack of trust in technology is a significant barrier, indicating that professionals are generally willing to adopt BIM technologies. The findings also showed that respondents highly ranked the strategy of introducing more BIM-related courses through universities, while workplace training and online self-learning were identified as the most preferred learning methods. This may suggest that respondents recognize the importance of universities in building a strong foundation of BIM knowledge for future professionals, while working professionals may prefer more flexible and practical learning methods that can be directly applied within the industry. Therefore, both academic education and practical industry-based training appear to be important for improving BIM awareness and implementation in Sri Lanka.

6. CONCLUSIONS AND RECOMMENDATIONS

This study assessed BIM awareness among construction professionals in Sri Lanka and identified the major barriers and strategies related to BIM adoption. The findings revealed that, while BIM awareness among Sri Lankan professionals is gradually increasing, practical implementation in the industry is still limited. Most professionals possess only basic BIM knowledge, and BIM usage is mainly restricted to 3D modelling applications. The study further identified that the high cost of BIM training and certification and the limited availability of training programs are the major barriers affecting BIM awareness and implementation. At the same time, respondents emphasized the importance of expanding BIM education and practical training opportunities through universities, professional institutions, and workplace training programs. Based on these findings, universities and professional organizations should expand BIM-related courses and provide more accessible practical training. Greater institutional and industry support is also required to promote wider BIM adoption in the Sri Lankan construction industry. Future research can focus on BIM implementation in specific sectors, such as infrastructure, MEP, and residential construction projects.

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