

Scope and Challenges of Implementation of Building Information Modeling (BIM) in Bangladesh

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Abstract: *Building Information Modeling (BIM) is a relatively new concept in Bangladesh and in the fields of architecture, engineering, and construction, the use of BIM is still in the early stages. However, there are signs that BIM is starting to gain momentum in the country. The government of Bangladesh has been encouraging the implementation of BIM in the booming construction sector. The Ministry of Housing and Public Works has started to use BIM for designing and managing government buildings and has also initiated training programs for professionals in the industry. There are also private firms and organizations in Bangladesh that have started to adopt BIM in their workflows, such as consulting firms and construction companies. However, the majority of the industry in Bangladesh is still using traditional methods of building design and construction, and the adoption of BIM is still limited. This paper tries to understand the challenges of BIM in practice and the actual scenario of Bangladesh. The study was done by analyzing the survey report which was carried out in architectural firms between December 2022 and March 2023. The data was collected from 25 professionals from 6 different architectural firms. Small practices with one or two employees to large practices with more than 170 employees were all represented in this study. The findings may help to formulate guidelines that will help to ensure Building Information Modeling (BIM) in practice in Bangladesh.*

Keywords: Building Information Modeling (BIM), Architecture & Construction, BIM strategy, BIM Practice, BIM collaboration

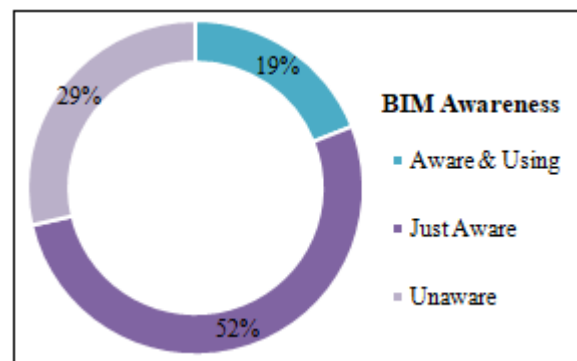
1. Introduction

Bangladesh is one of the first growing economic countries. In Bangladesh, the construction sector is booming day by day. To ensure efficiency there is no other way to adopt BIM in the construction industry. It has become obvious that correctly implementing BIM is a challenging task. It involves considerable time and investment in resources. Workflows and processes now in place must be changed. The definition of BIM in actual practice has been highly debated. Some professionals still equate BIM with using 3D parametric models. In reality, BIM is a process rather than a specific technology (NBSReport 2018). BIM adoption has many benefits; the majority (71%) of those who have used it say it has increased their productivity, and those who plan to use it agree with this remark. (NBS Report 2020). BIM is also useful in terms of coordination between different disciplines. It also speeds up the process and aids in communication. For example, an air conditioning unit within a BIM would also manage the data about its supplier, operation and maintenance procedures, flow rates, clearance requirements, etc. (CRC Construction Innovation, 2007). Most of the architectural firms in Bangladesh consist of 10 - 15 employees. There are various distinctions between small practices and larger businesses when examining the obstacles preventing small practices from advancing with BIM. A little under two - thirds of businesses claim that their projects are too modest to use BIM. Small practices face a lack of expertise and training.

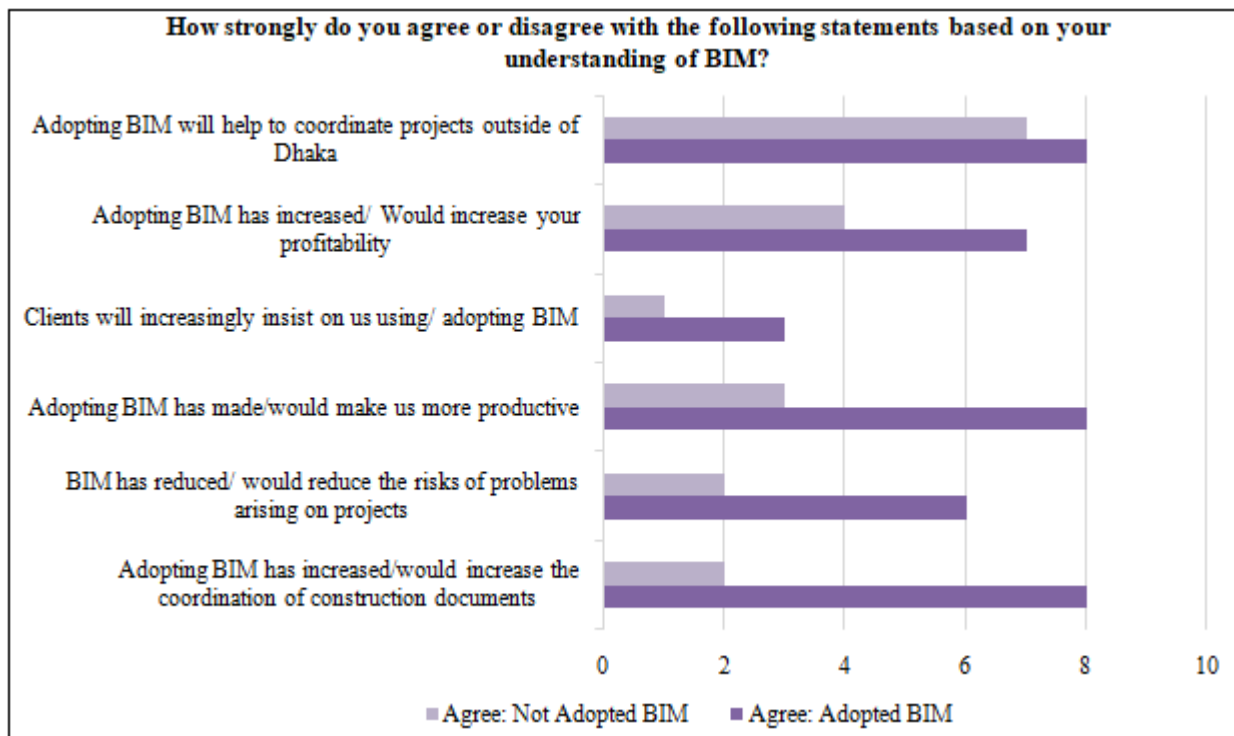
BIM from the perspective of professionals:

There are a number of reasons why professionals in small & big firms may not be using Building Information Modeling (BIM). Some possible reasons include:

- BIM is a relatively new concept; not everyone may know its benefits or how to use it.

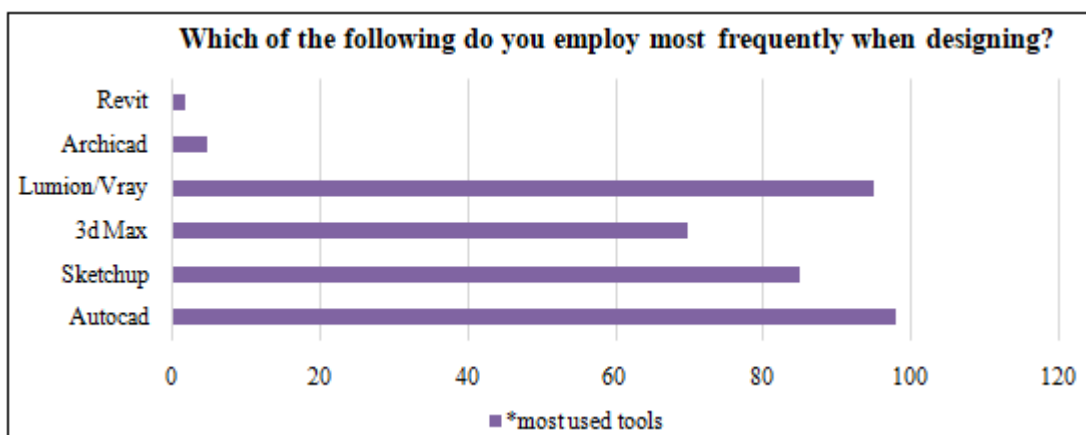


- Adopting BIM requires investment in software, hardware, and training, which may not be feasible for some small countries with limited resources like Bangladesh.
- Some professionals may be resistant to change and prefer to stick with traditional methods of building design and construction.
- Small countries like ours may have a limited pool of professionals with the skills and knowledge to use BIM effectively.
- BIM software and hardware can be expensive and may not be affordable for small practices.
- Some small offices may lack government support or incentives for the adoption of BIM, which can make it difficult for companies to justify the investment.



But some things have changed. Now manufacturers provide their information as digital objects. While numerous companies have seen the rewards, it does not necessarily change how all projects are managed constantly. Information related to the 3D model, including the specification, is a crucial component of BIM (CRC Construction Innovation,

2007). The majority of small and large offices use word processors and spreadsheets, and for many years the most popular solution has been MS Office or Office 365. Moreover, it is proved that up to 7% reduction in project time is possible using BIM. (CIFE, 2007)



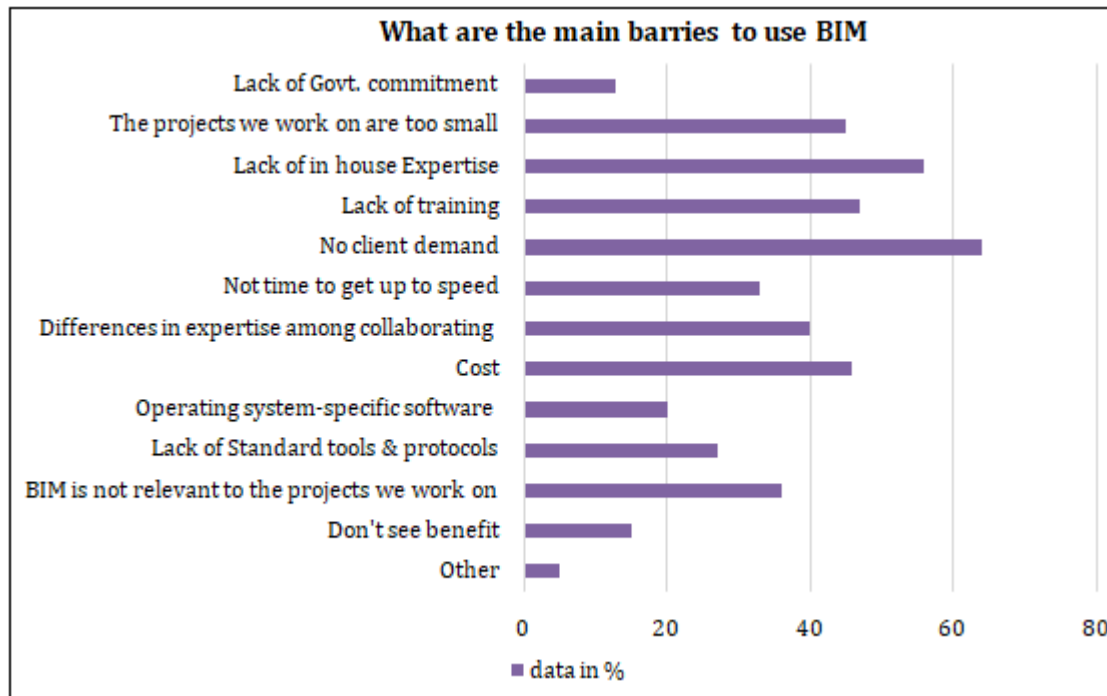
Main barriers to using BIM

There are lots of reasons for not using BIM but some issues need to be solved by the professionals to adopt it.

- **Lack of knowledge and training:** Many professionals in the architecture, engineering, and construction industry may not be familiar with BIM and its capabilities, making it difficult for them to implement it in their workflows.
- **Resistance to change:** BIM requires a significant change in the way that buildings are designed and constructed,

and some professionals may be resistant to changing their traditional methods of working.

- **High costs:** Implementing BIM can be costly, as it requires specialized software and hardware, as well as staff training. Some offices may not have the budget to invest in BIM.
- **Data security and privacy concerns:** BIM software stores a lot of sensitive information about building projects, and some offices may be concerned about the security and privacy of that data.



Limited interoperability between different BIM software

Even though BIM is a digital tool it's not a standard, different software can be incompatible, which can make it difficult to collaborate with other offices and professionals who use different BIM platforms.

Recommendation for implementation of BIM:

Adopting Building Information Modeling (BIM) in an office can be a challenging process, but with the right approach, it can be done successfully. Here are some steps that can be taken to adopt BIM in an office:

- 1) **Professional Institution Activity:** Professional institutions like the Institute of Architects, Bangladesh (IAB) can come forward with some initiatives to make BIM accessible for all registered architects.
- 2) **Develop a clear BIM strategy:** Identify the specific goals and objectives that the office hopes to achieve with BIM, and develop a plan to achieve those goals. This plan should include timelines, budgets, and resources that will be required.
- 3) **Invest in software and hardware:** BIM requires specialized software and hardware, so it is important to invest in the necessary tools. This includes BIM software, 3D modeling software, and hardware such as laptops or workstations.
- 4) **Get staff trained:** Staff members will need to be trained on how to use BIM software, and how to work with BIM models. This can be done through in-house training, or through external training providers.
- 5) **Encourage collaboration and communication:** BIM is a collaborative tool, so it is important to encourage collaboration and communication between staff members. This can be done through regular meetings, and by creating a culture of open communication.
- 6) **Continuously review and improve:** BIM adoption is an ongoing process and the office should continuously review and improve its BIM process, this can be done through ongoing staff training, regular software

updates, and implementing new BIM tools as they become available.

- 7) **Implement a data management system:** BIM generates a lot of data, so it is important to have a system in place to manage and organize that data. This includes version control, backups, and security protocols.

2. Conclusion

It is important to keep in mind that the adoption of BIM is a gradual process and it may take time to see the benefits. There is no denying the increase in BIM awareness and usage. Its advantages are widely acknowledged. It boosts productivity, enhances building operation and maintenance, lowers risk, and can boost an organization's profitability. With a clear strategy, buy-in from staff, and the right tools and training, an office can successfully adopt BIM and improve the way they work.

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