iJRASET
International Journal For Research in Applied Science and Engineering Technology



INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Volume: 10 **Issue:** V **Month of publication:** May 2022

DOI: https://doi.org/10.22214/ijraset.2022.42298

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International Journal for Research in Applied Science & Engineering Technology (IJRASET)
ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.538
Volume 10 Issue V May 2022- Available at www.ijraset.com

BIM, Lack of Importance for Construction Projects in India

Kumbhar Pankaj Pandurang[1], A.P Khatri[2]
[1]*M.E Construction & Management Student,* [2]*Assistant Professor, Department of civil engineering, Tssm's Bhivarabai Sawant College Of Engineering And Research, Approved By AICTE and Affiliated To Savitribai Phule Pune University*

Abstract: ***Many researchers have endorsed Building Information Modeling (BIM) as the greatest technology for improving construction procedures. Most construction companies, on the other hand, do not employ BIM due to a number of barriers. The purpose of this article is to look into the barriers to BIM adoption in the construction industry. A quantitative technique was used to study the research objectives, and a structured questionnaire was created. The questionnaire was distributed Through the medium of Link, with 53 of them being satisfactorily completed. Whereas analysis was been carried out on software IBM SPSS Statistics Version 26.***

Keywords: Construction industry, Building Information Modeling (BIM), Limitation considerations Quantitative method, Structured \questionnaire, IBM SPSS Statistics.

I. INTRODUCTION

The construction sector needs to look for methods for lowering project costs, shortening project durations, increasing productivity, and improving quality. In the construction sector, BIM has been embraced as a new strategy to attaining these goals. BIM is defined as follows by Autodesk, a developer of different Building Information Modeling (BIM) products. "Building Information Modeling (BIM) is an intelligent 3D model-based method that enables architecture, engineering, and construction (AEC) professionals the information and tools they need to plan, design, construct, and manage buildings and infrastructure more efficiently." Another definition of BIM is a computer-aided technique that focuses on communication, production, and analysis of building information models during the construction process. BIM allows you to construct relationships between attributes in order to incorporate any changes in the building's elements into the building's information.

BIM delivers foreseeable material, schedule, and quantity information, as well as the ability to analyse data based on the environment and structure to predict unforeseen information. According to J. Harris, Building Information Modeling (BIM) first appeared and developed at Georgia Institute of Technology in the late 1970s, and then quickly grew in popularity as construction firms became more interested in using BIM to integrate and manage information across multiple phases of a project. "Standards for the Exchange of Product Model Data" (STEP) and Archi CAD for Mac computers released the first BIM software in 1984. BIM implementation has been widely employed throughout the last decade, and it is now regarded as one of the most important technology advancements in the building industry.

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Although the potential benefits of BIM are tempting, the rate of adoption differs per country. According to previous studies, BIM implementation and usage is expanding in the majority of developed countries.

Nonetheless, in developing nations, BIM adoption is at a standstill. In most underdeveloped nations, BIM has not been used throughout the entire building cycle of projects. BIM has not yet infiltrated the whole project construction cycle in India, despite having gone through the stages of idea introduction, theoretical research, preliminary application, rapid development, and deep application during the last ten years. Despite the government's efforts to promote BIM use, acceptance of BIM in China's small and medium-sized businesses is still at an early stage.

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II. LITERATURE REVIEW

Construction and Architectural Management, Building Information Modeling (BIM) is a rapidly growing topic of research that encompasses a wide range of knowledge domains in the Architecture, Engineering, Construction, and Operations industries. The diversity of BIM research subjects emphasizes the importance of and need for a research framework to facilitate methodical inquiry. This study identifies a research and delivery architecture, as well as a specialized ontology and visual language, that are specifically designed to examine the BIM domain and offer meaningful results. "An integrated framework [incorporating] multiple approaches to information within a cohesive whole," according to the BIM Framework. Not only the information model, but also the reference process model and dictionaries, might be included. It's feasible that it'll go even farther and allow for the integration of ontology/taxonomy breakthroughs from the categorization realm

Employees in the construction industry are constantly challenged to deliver thriving projects despite tight budgets, insufficient manpower, overrun schedules, and inconsistent information. Because two works cannot take place at the same location and time, major works such as architectural, structural, and electrical designs must be well synchronized. Building Information Modeling aids in the early detection of clashes and determining the precise location of disparity

When technological alternate spans interorganizational limitations in venture networks, interorganizational enterprise practices should additionally evolve and adapt to those modifications. Future studies ought to take a look at how variations in BIM exercise paradigms effect venture performance. The life of a few corporations who view BIM as a manner to decorate visualization, others that see BIM as gambling an vital coordination role, nonetheless others viewing BIM mainly as an analytical tool, and ultimately others who view BIM mainly as a way to combine product statistics into the deliver chain is probably to restrict the blessings of the usage of BIM for all corporations withinside the venture community. Research ought to discover methods to enhance coordination given the life of this array of paradigms that may co-exist on a venture

.Developed international locations have already benefitted themselves and are taking similarly measures to undertake BIM to a greater extent. Whereas India remains now no longer at par with developed international locations. For this India should set up facilities which might paintings on selling BIM on a big scale. The Government should tie up personal quarter corporations to encourage the usage of BIM and it have to take the initiative as completed through Government in lots of international locations.

Professionals and groups need to tools up now or at the least make themselves privy to the price of BIM, or how a BIM-enabled company would possibly higher serve the industry might quickly be in excessive demand. BIM turns into a key requirement, be it for economic, surroundings or other reasons. It is essential to recognize that BIM, at its core, is not simply software, however a human interest that ultimately involves large method adjustments withinside the constructed environment sector

III. RESEARCH METHODOLOGY

A. Questionnaire Design

A questionnaire was created, and the research goal and objectives were determined. objectives, as well as the main portions of the report questionnaire. The Portion focuses on the respondents' personal Filled Data. The questions Asked are such as about level of education, nature of work, and position of the respondent and, correspondingly, employment experience.

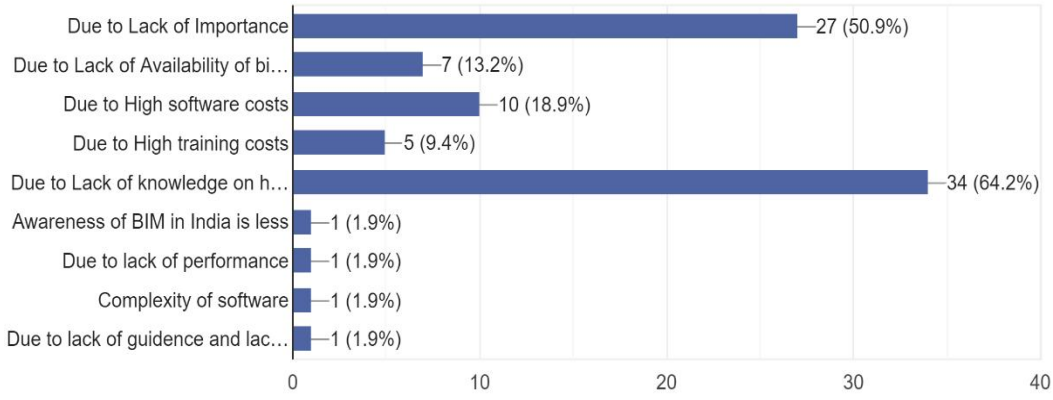


Fig. 1 Responses to the Questionnaire Designed.

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IV. RESULTS & DISCUSSION

The questionnaire's validity was tested by presenting the initial draught of the questionnaire to 53 professionals with academic understanding of BIM in hardcopy or softcopy through email. These specialists made some extremely helpful and significant changes to the questionnaire, such as clarifying some technical terms, adding some questions, and auditing the English language. These changes aided in the development of the questionnaire's final edition

Table 1 : Results of Data Analysis Executed in IBM SPSS 26

Experience in B.I.M (Building information modelling)					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0-2 Year's	37	69.8	69.8	69.8
	10+ Years	1	1.9	1.9	71.7
	2-5 Year's	12	22.6	22.6	94.3
	5-10 Year's	3	5.7	5.7	100.0
	Total	53	100.0	100.0	
According to you are BIM Tools Affordable ?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Don't know	2	3.8	3.8	3.8
	No	8	15.1	15.1	18.9
	Somewhat	20	37.7	37.7	56.6
	Yes	23	43.4	43.4	100.0
	Total	53	100.0	100.0	

Working Sector					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Private Sector	47	88.7	88.7	88.7
	Public Sector	6	11.3	11.3	100.0
	Total	53	100.0	100.0	
Will implementation of BIM be easier for smaller or larger companies in terms of costs and efficiency?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Don't know	2	3.8	3.8	3.8
	No	11	20.8	20.8	24.5
	Yes	40	75.5	75.5	100.0
	Total	53	100.0	100.0	
Will implementation of BIM be easier for smaller or larger companies in terms of costs and efficiency?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Don't know	2	3.8	3.8	3.8
	No	11	20.8	20.8	24.5
	Yes	40	75.5	75.5	100.0
	Total	53	100.0	100.0	

Do you agree that clients will increasingly insist on BIM adoption?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	10-20%	8	15.1	15.1	15.1
	20-50%	17	32.1	32.1	47.2
	50-80%	18	34.0	34.0	81.1
	80-100%	8	15.1	15.1	96.2

	Can't say	1	1.9	1.9	98.1
	Don't know	1	1.9	1.9	100.0
	Total	53	100.0	100.0	
Do you think in India we don't have enough demand from clients and/or other firms for BIM projects?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	7	13.2	13.2	13.2
	Yes	46	86.8	86.8	100.0
	Total	53	100.0	100.0	
Do you need additional training necessary to use BIM tools for implementation purposes?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	4	7.5	7.5	7.5
	Yes	49	92.5	92.5	100.0
	Total	53	100.0	100.0	
Will BIM take time to evaluate, if there is a lack of sufficient time to evaluate BIM?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	7	13.2	13.2	13.2
	Somewhat	16	30.2	30.2	43.4
	Yes	30	56.6	56.6	100.0
	Total	53	100.0	100.0	
According to your opinion, working in BIM makes your job difficult.					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	40	75.5	75.5	75.5
	Somewhat	6	11.3	11.3	86.8
	Yes	7	13.2	13.2	100.0
	Total	53	100.0	100.0	
In your opinion, how will the implementation of BIM affect the cost analysis and lifecycle costing? Up to What Percentage?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	10-30%	15	28.3	28.3	28.3
	30-60%	24	45.3	45.3	73.6
	60-100%	14	26.4	26.4	100.0
	Total	53	100.0	100.0	

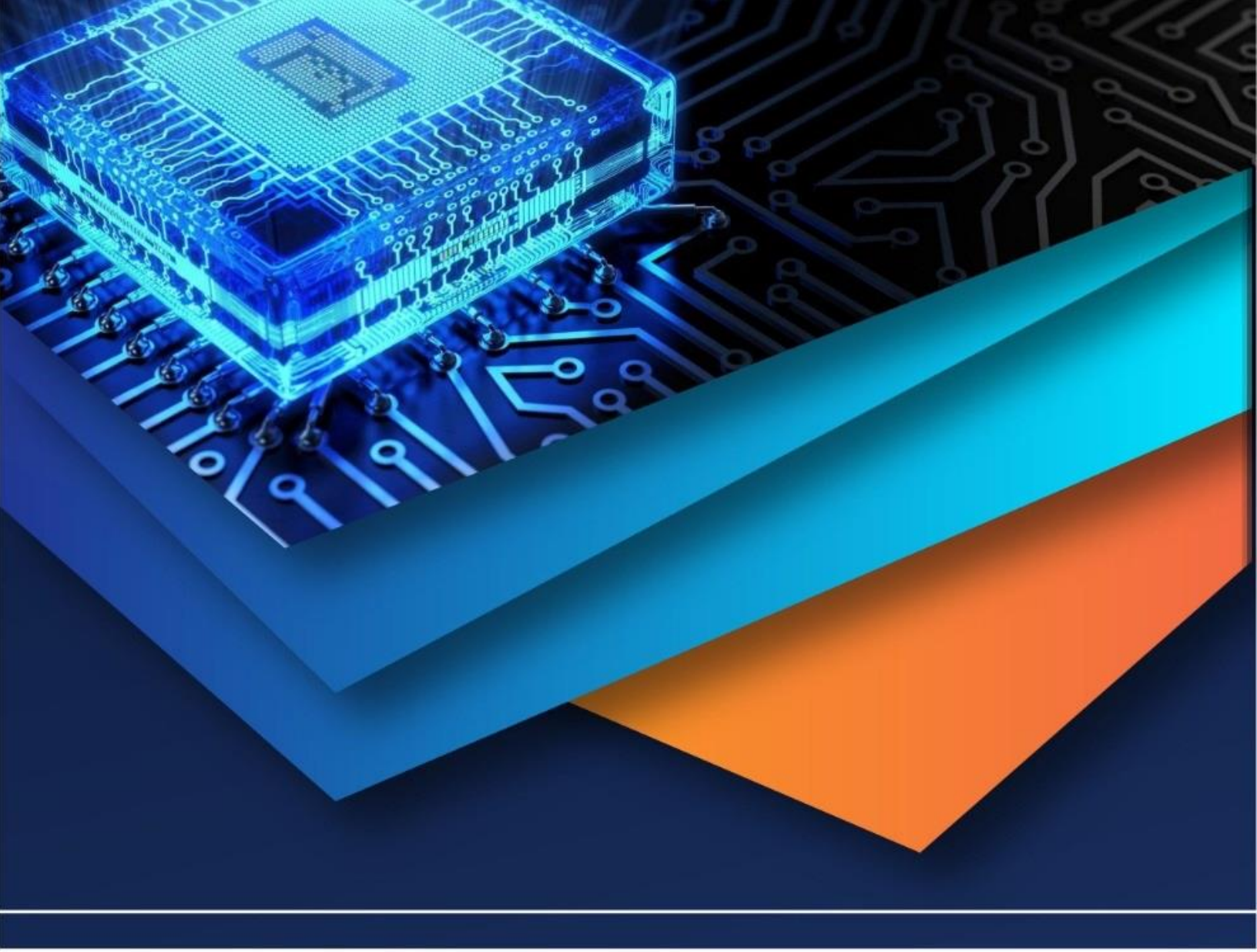
V. CONCLUSIONS

Limiting limitations for BIM-based software packages are referred to as technological factors . One of the limiting issues that prevents BIM implementation is a lack of BIM software packages. Adoption Many software companies are profiting from BIM. programmes that focus solely on quantitative features and ignore qualitative aspects the entire procedure The ability to transmit and reuse data in the workplace. BIM should incorporate a graphical model, so there is a gap. Information sharing could be viewed as a constraint the lack of data interoperability is the most serious problem a stumbling block to BIM deployment Interoperability is the ability to communicate with one another. In the construction business, the high cost of BIM deployment has been cited as a major roadblock. Implementing BIM in construction enterprises necessitates the procurement of essential software and technology, as well as the training of employees on how to use it efficiently, all of which adds to the entire project cost. Because software packages require updates on a regular basis, the cost of updates must be factored into the overall BIM installation cost.

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