



## "BIM( Building Information Modeling) Uptake"- A digital marketing tool in Construction Industry

Capability Enhancement

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## ABSTRACT

None can deny the fact that digitalization of AEC (Architecture Engineering & Construction) industry has been at a snail's pace unlike the non-construction sectors. However, last decade seemed to be fruitful era with the emergence of BIM (Building Information Modeling, a set of process & technological tools utilized to virtually build a digital project prior to its on-site construction) which transformed the fragmented construction domain into a collaborative and integrative digital platform. This paper addresses the introduction of framework for Digital Marketing Success using BIM (DMSBIM) process to utilize it as an endorsing tool for contractors to showcase their projects virtually to all stakeholders. Moreover the paper focuses with an opinion poll and a case study for holistic apprehension of integrating BIM process for Marketing or branding of Water Infrastructure facility which abetted in stakeholders buy-in. The research methodology adopted here is the perception analysis of utilizing BIM as a digital marketing catalyst among the stakeholders of AEC (Architecture Engineering and Construction) industry and then the development of virtual prototype is designed and whereby acquiring the Decision Making Cell (DMC) for the contractor's team in marketing their building product models at conceptual stage. The inferences and key takeaways in execution of BIM as a marketing tool was significant improvement in business of bagging the projects with such semantically rich model development. Also from the case study the digital prototyping aids in delivering a greater opportunity to communicate throughout the Life Cycle of the Project in averting delay and cost overruns.

## INTRODUCTION

Globally, the construction sector has been plagued with stringent competition, uncertain outcomes and meagre profits relative to other sectors [1]. The prime cause for this aggressive competitiveness is the hassle free entry of companies of small scale enterprises to large conglomerate players [2]. In addition to this, in order to discover a new job, participation of construction companies in a cut-throat tendering process is mandatory for delivery of their services [3, 4]. In this current era, huge failure of construction businesses occur in contrast with many other businesses owing to these circumstances [5, 6]. Under those austere conditions, construction companies are in quest for avenues that spawn higher earning [7]. In such scenarios, marketing serves as a viable competitive gain for construction firms and aids like a B2B differentiator. Marketing as per The American Marketing Association has been defined as “the activity, set of institutions, and processes for creating, communicating, delivering, and exchanging offerings that have value for customers, clients, partners, and society at large” [8].

Marketing process in construction sector involves with tasks like searching new customers, identifying new business verticals, and new ventures, delighting the customers and binding their trustworthiness, market survey and investigation, contributing towards supplementary facilities, project budgeting, submission of improved offer, branding activities inclusive of advertisements, public relations, flyers and corporate distinctive agendas

[9]. Advertising Management performs a key role in the fruitfulness of a business and directly proportional to cost-effectiveness and client fulfilment. As per NBS (National Building Specification, UK) BIM is defined as (Building Information Modeling) as a process of generation and handling information of a project facility throughout its lifecycle. In this paper, the author utilizes the "marketing mix" management concept and how BIM can be used as one of the 'Promotional' tool in enabling enhanced decision making capability of the project team is dealt. A conceptual framework has been synthesised post to the respondent's perception on usage of BIM as marketing platform.

## DETAILS OF THE PAPER

### Literature Review:

Likewise, in the construction domain too can accomplish numerous paybacks from potent marketing, as well as jump in turnover, margins and customer delight, creation of brand trademark, arriving into novel marketing segments, and improvising client reliability, status, and overall qualitative aspects [10]. Nevertheless, misinterpretation or total neglecting of marketing persist in plenty construction firms [11, 12]. In this era of digitalisation every industry of our yesteryears work has been migrated to towards digitalized functioning and marketing segment is no different. One of the definitions of Digital marketing implies as "the use of digital channels to promote or market products and services to consumers and businesses" (Digital Marketing 2016). In other words, the key motive is to propagandize a brand with the usage of varied methods of computerised media.

Marketing combine, an inspiration established by Neil Borden UN agency explicit that "associate degree decision-maker could be a melange' of components, UN agency typically trails a formula as he passes, often familiarises a formula to the constituents closely accessible, and currently then tests with or discovers components no one has experimented." (Culliton, J. 1948). Albert Francis Charles Augustus Emmanuel Freyr (Frey, A. 1961) has come across extra set of variables for market classification into 2 classes providing, and method. The "offering" includes the worth, service, brand, product, service and packaging. though the "process" constitutes novel unit creation, billboards, promotion, sales elevation, personal selling, publicity, distribution networks, selling study and strategy creation. Lately, Bernard Booms and Mary Bitner constructed an archetypal containing of seven P's (Booms, B. and Bitner, M. 1981). They included "People" in persisting list of variables for identifying the importance of anthropological entity in the marketing arena. Also they have included "process" to reproduce the point that services require process at the purchase point unlike the physical goods.

BIM as a digital promotional tool has been used as a marketing strategy in construction industries especially with respect to contractor firms. A decade ago, BIM was still nascent to client or other stakeholders involved with them, however today the complex demands driven by the client poses the contracting firms to mandate the requirement of BIM services on the real time projects. Gradually, the client's mandating of BIM services in their contracts has

been increasing, which leaves the contractor no option but to leverage the BIM capabilities and showcase it through a promotional strategy during bidding stage to possess competitor advantage.

**Methodology:**

The research studies on BIM usage as a Digital Marketing tool in Construction sector by contractors has been untouched, the author attempts to fill this research gap. With inclusion of BIM as a promotional tool in one of the seven P's of Marketing Mix a conceptual framework was formed (as shown in figure 6) and to gather data, initially personal interviews were carried out to inspect how BIM could improve the marketing and public relations aspect of a firm and how could it potentially improve the trustworthiness of the customers, clients and related stakeholders. Post to the personal interviews, an analysis was conducted and the basis of the questionnaire is primarily to understand the construction industry requirements and needs to fulfil the marketing scheme and the results of the interviews which have been presented as per the figures 1, 2, 3 & 4.

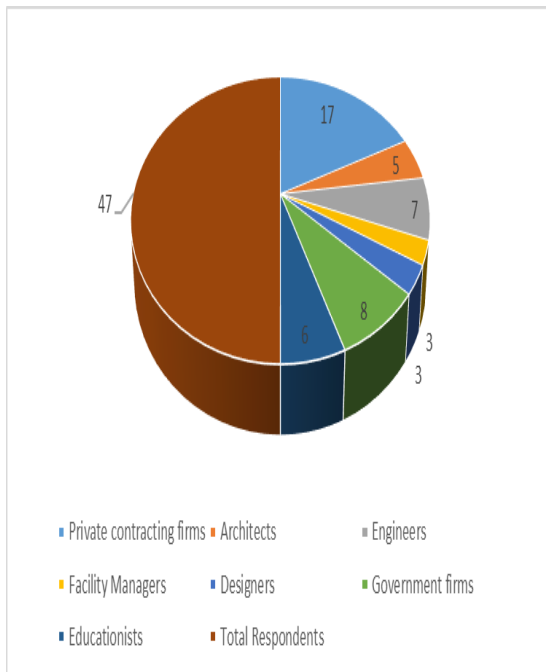


Figure 1: Types of Respondents

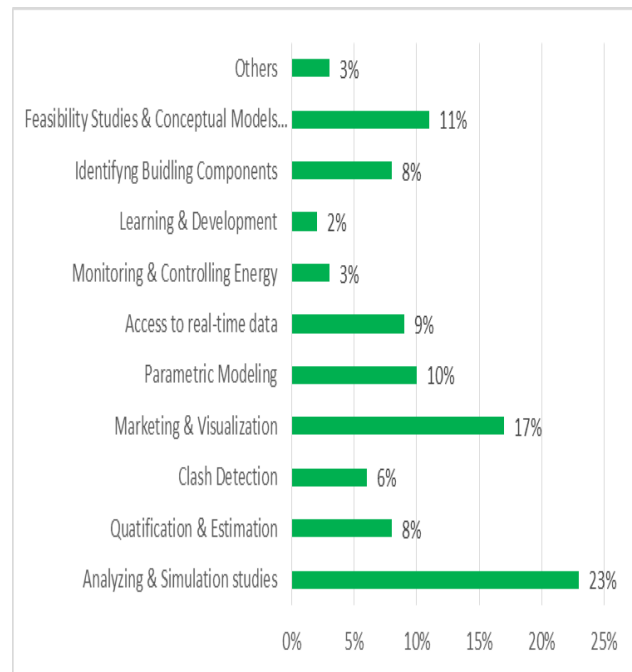


Figure 2: Probable Application areas of BIM Uses

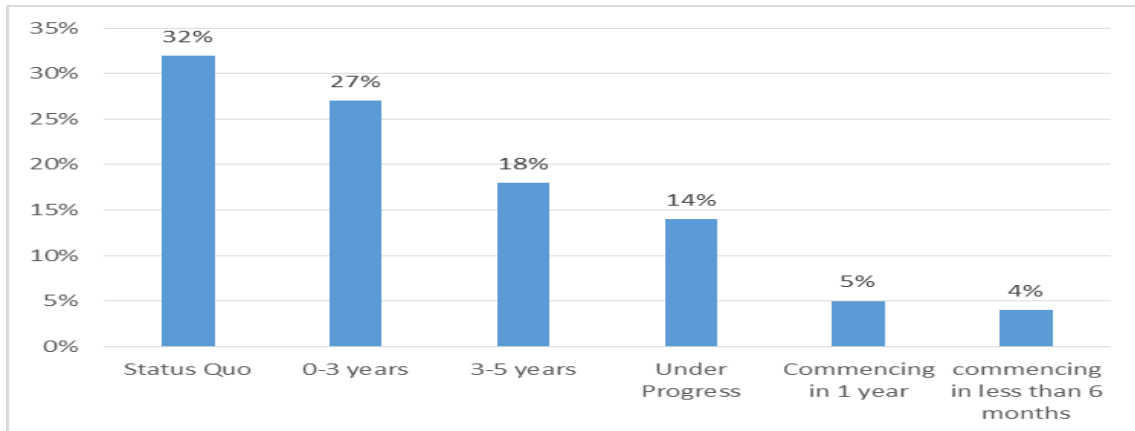


Figure 3: Non-BIM Compliant users' agenda to use this BIM marketing tool

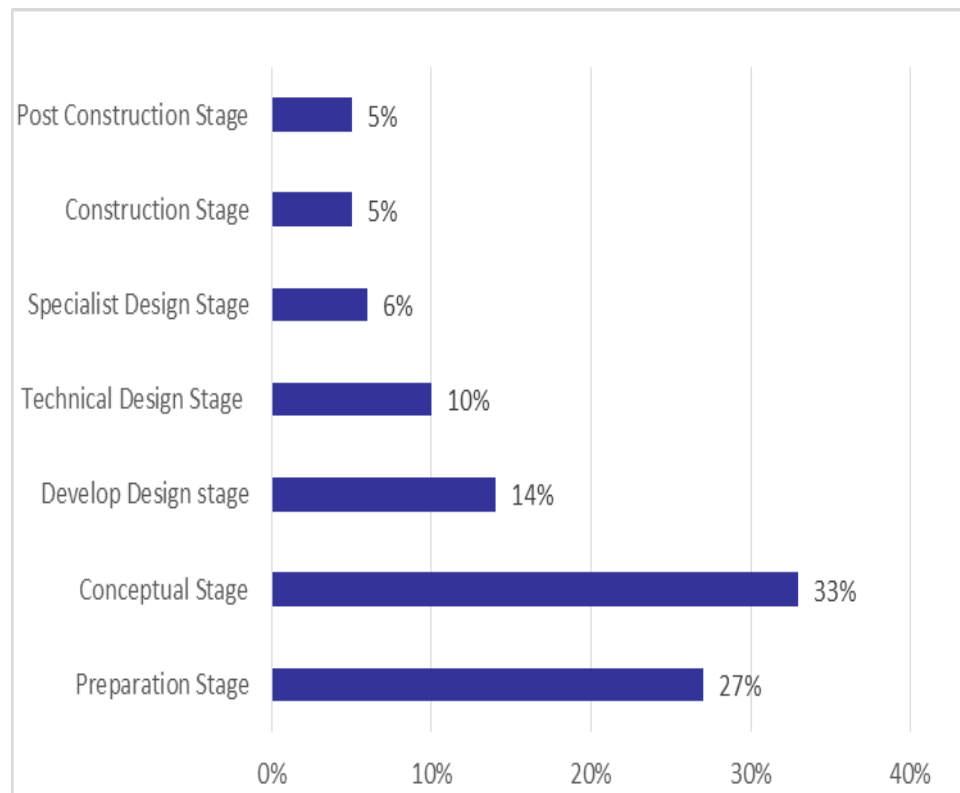
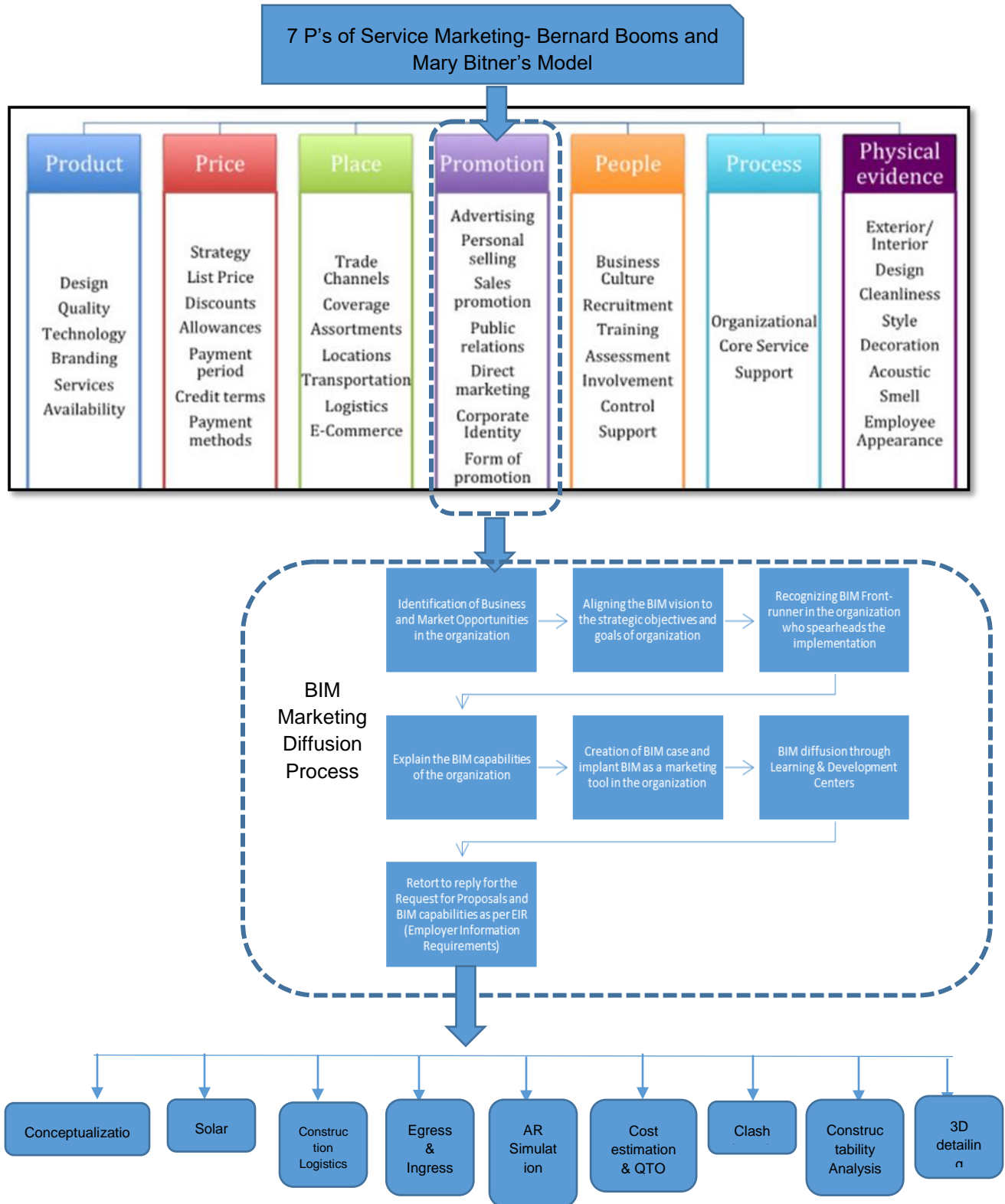


Figure 4: Response from respondents as per RIBA stages where BIM as marketing tool will be used

Figure 5: seven P's of Marketing Mix a conceptual framework



### Case Study:

This paper elucidates a couple of case study on current construction of watercourse Revival project, in India. Its main objective intends to revive and build space development for nearby town. Its one amongst its quite comes wherever the treated water are going to be invigorating the watercourse. Additionally the project seeks to develop associate system which may stand up to general public use and revive the waters of watercourse that has reduced to the shape of abandoned river . The scope of the project includes

- a) Course correction /Strengthening.
- b) Sewerage interception, treatment and Disposal.
- c) Improving Water Quality Standards within the stream.
- d) Improving Water handiness within the stream.
- e) Land / space Development designing on the Nallah.
- f) Development of open inexperienced areas wherever ever attainable.

Waste Treatment Infrastructure comes in design, Engineering, and Construction (AEC) business are effort grave problems from conception to facilities management stage. In the industry, BIM (Building info Modeling )is a unique trend that's presently utilized by AEC business and waste matter Treatment Plant comes of Water & Water treatment Infrastructure business generally want two-dimensional drawings for shifting the planning info to onsite. These drawings square measure coined as construction documents and kind the fundamental foundation documents from origin to facility management and at last to demolition. additionally there square measure multitude drawings for various classes particularly plans, sections, details and general alignment, the likelihood of errors and exclusions square measure a lot of doubtless to occur. In BIM, integration of 3D components with time is crafted to get 4D models. The widespread utilization of BIM has multiple profits over a complete lifecycle of a project like intelligent call system, evaluating the responsibility of the project information and project constructability, wherever of these parameters minimize the building lifecycle prices, Requests for info and alter orders. BIM enhances the project delivery time, value estimation, contributes quality assurance, conflict analysis, worth engineering, instrumentation setup, progress observance through visual image and to the post-handover section through Facilities and quality Management.

### Key Challenges:

The client insisted from the commencement stages of the project about the surprise reviews they conduct at site. Since the project is of high valued contract, the client made sure to take advantage of the value for



money for periodic payments they pay for the services rendered by the contractor. The contractor with his sub-contractors thought the utilisation of BIM as a marketing tool would be forward thinking approach. An in-house BIM team was formed post to the rigorous trainings given by Learning & Development Division of the main contractor in 2 months. Availability of BIM professionals was scarce and the awareness of BIM within the company was gaining momentum since then onwards.

### **Lessons Learnt:**

The Project Team could successfully accomplish the following decision making skills some with the usage of Digital Marketing using BIM :

- a. Constructability Analysis : Prior to the actual execution at site, the feasibility of the construction was verified
- b. Solar Analysis : With the conceptual model creation, the sun path analysis simulation studies was also conducted.
- c. Construction Logistics: Logistics Planning is one of the prime criteria that could be analysed prior to the arrangement of construction equipment and stacking of construction materials at site
- d. Egress & Ingress : Especially the Project Team could be cautious of the safety hazards and the safety in charge can prepare a dossier of safety hazard mitigation plans prior to the construction itself.
- e. Augmented Reality simulation studies: The client in this case study, demanded for the what-if-scenario kind of analysis for the Project Engineering Building by asking the contractors to change the wall cladding of different materials and permutations. This could happen when BIM is used as a Marketing tool
- f. With the module of 5D BIM, quantity take offs and estimation provided a clarity on the employer's end for better authentication of budgeted estimates

## CONCLUSION

Owing to the slackness of technological advancements' usage in construction sector and lack of awareness among the construction professionals on the emerging trends of construction like BIM, industry suffers from gross loss of productivity. Rampant competition exists between small to large scale enterprises for seizing the projects. In order to capture such scenarios and with the demanding nature of the client's requirements, it is essential to alter a strategy in such a way that the prestigious projects can be bagged by the contracting players who deploy novel marketing techniques. The author identified the research gap on utilising BIM as a marketing tool by choosing one of the seven 'P's of Marketing Mix model and used in the case study. The project team used the stepwise

conceptual framework developed and the merits of the decision capabilities enhanced and the contracting team could position within the market a niche place having utilized BIM processes as promotional platform.

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