Comparative Study of Bim Modeling With Conventional Modeling For Bridge

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Abstract- *Building Information Modelling (BIM) is becoming the fastest growing technology in construction Field. This is happening due to successful project completion using BIM & its advantages like cost saving and completion of project before dead line.BIM it is the common platform between client, contractor.*

Engineers and corresponding people working with that project. BIM technology using in every fields such as private as well as public projects.

This paper aims to show the BIM and project managers' roles on construction projects. Comparative study of BIM modelling with conventional modelling. And to show duration saving between both modelling.

I. INTRODUCTION

1-1. History

Building Information Modelling (BIM) can be defined as it is a process involving the generation and management of digital representation of physical and functional characteristics of places. The BIM Handbook (2008) defined BIM as a computer-aided modelling technology for the purpose of managing the information of a construction project focusing on production, communication and analysis of building information models.

The concept of BIM theoretically developed at 1970s and grew rapidly after that. The BIM technology 1st used in construction firld at 2002.

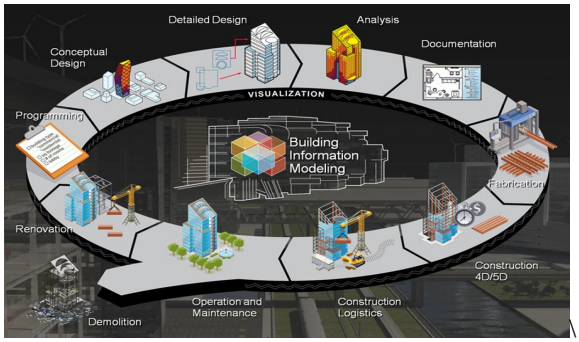


Fig No.1-flow chart of BIM process

1.2: Objectives

The objective of this project are to develop comprehensive, informative and practical BIM based application for the purpose of construction quality management and to investigate how it can be fit into current construction practice. And study of BIM using different software's to get accuracy in result. And to compare BIM modelling with conventional modelling for different projects such as public and private projects.

- To study BIM using Autodesk product Revit & Navis work
- To study level of development/detail
- To maintain project coordination between client contractor and consultant.
- To prepare BIM model.
- To compare cost & sustainability development by comparing conventional modelling with BIM

1.3 problem statement:

- Apparently the standard of Indian construction industry still arguable &below the expectation compared to international construction industry.
- Indian construction industry has implemented a few steps of management systems like environmental, management system, safety & health management system etc.
- Improves effective planning & schedule of the construction activities to achieve the success to deliver project within time& to minimize cost.

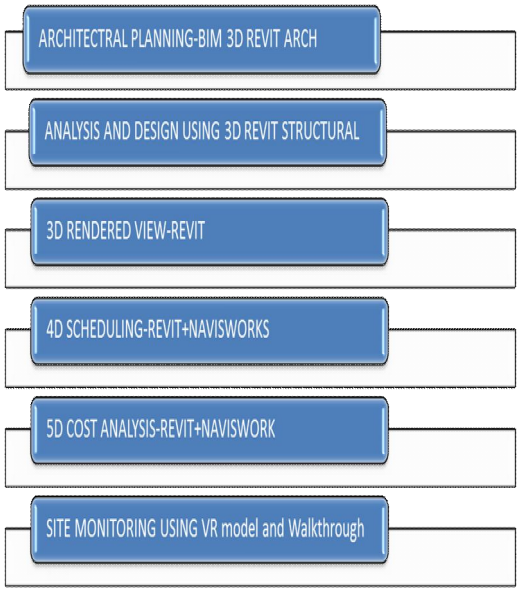
II. LITERATURE REVIEW

From literature survey it is clear that

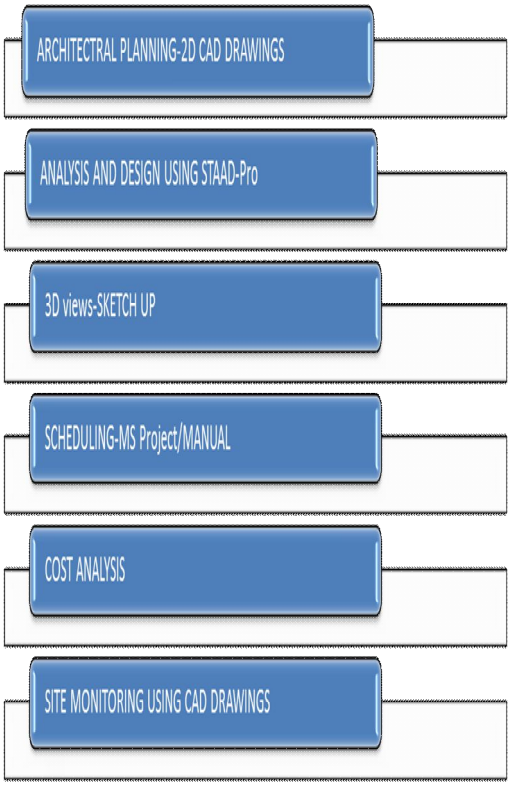
- BIM improves co-ordination between Architect, Engineers, contractor, owner and operator.
- Details about level of development which are beneficial for BIM
- Benefits and application of BIM in different construction projects.

- How BIM affects the quality and economy of construction
- Application of BIM in big budget projects in which no of contractors are working in same platform.

III. METHODOLOGY



FLOW CHART OF BUILDING INFORMATION MODELLING



FLOW CHART OF CONVENTIONAL MODELLING

IV. CASE STUDY

Harris Bridge, Khadaki

Location: Khadaki Pune
Effective span: 80 m
Start date: 18th Nov.2016
Client: PCMC
Contractor: M/S Valecha Engineering Ltd,
Structural consultant: ACME structural consultant

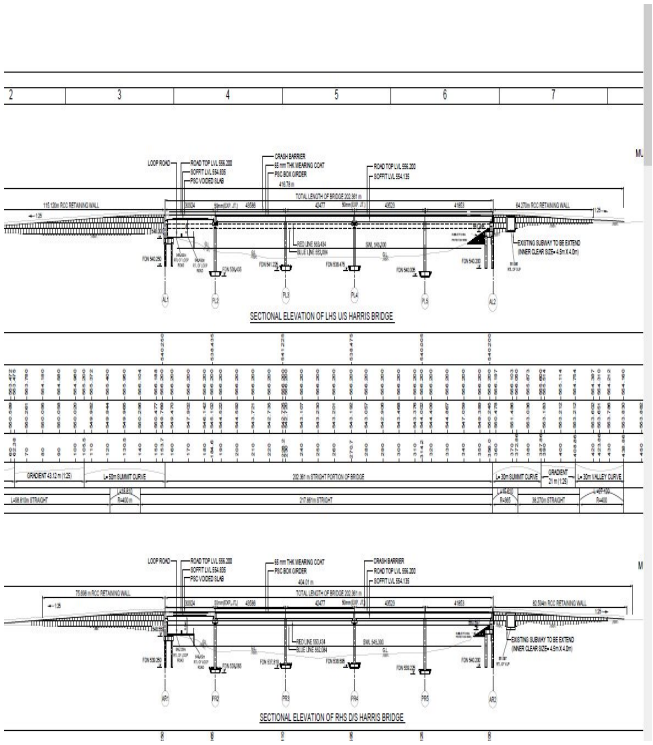


Fig2:GAD drowing of haris bridge

Fig3:4D model using infra work

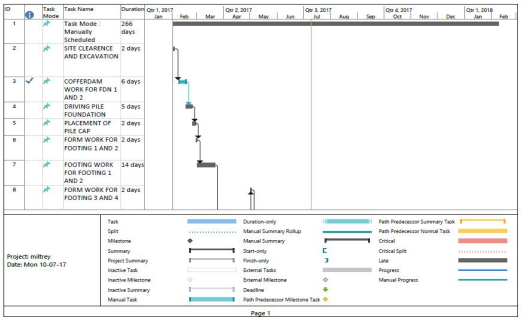


Fig4:Scheduling of site using MSP

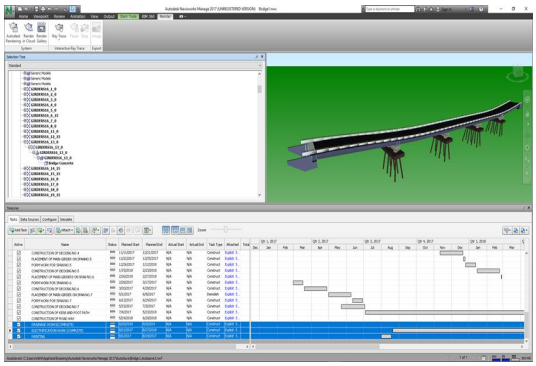
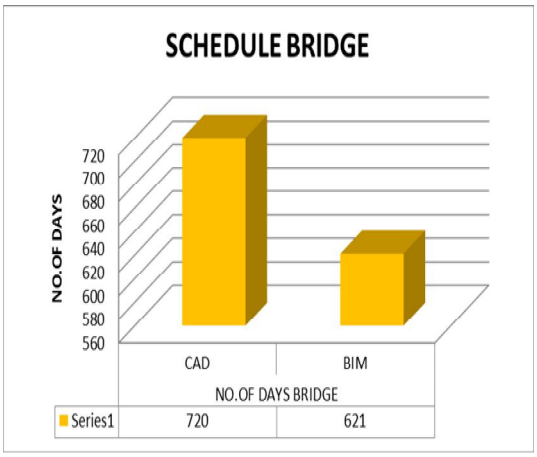
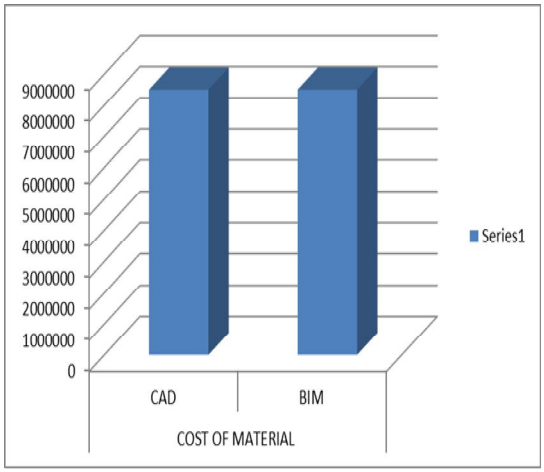


Fig5:4DSchedule using Navis work

V. RESULT



Convetional v/s BIM scheduling bar chart

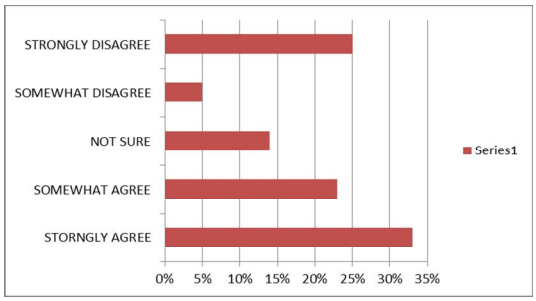


Convetional v/s BIM, material required

Using this bar chart this is clearly visible that with help of conventional method that is using MSP the project duration will be 720days and with the help of BIM scheduling it is reduced to 621 days. Using BIM scheduling we can save up to 15% cost of project.

And in public projects, project completion on time is more important than cost of project.paticularly for this case study traffic problem is so high and if such projects will be completed on time, this issue will solve early. And in both cases material required will be same.so cost of material will be same. Only we will save cost with help of scheduling only.

VI. QUESTIONARIES



Response survey bar chart

Using response survey bar chart it is clearly visible that BIM technology it is adopted and its advantages. But in public projects this is not normally adopted.

6.1 Limitations

1. This BIM is about visually sequencing project activities as the scheduler walks inside the virtual model. Scheduling of construction projects defining construction methods and tasks, sequencing of tasks, resource allocation, resource leveling, activity

duration estimating, cash flow analysis, staff allocations.

2. Considerable amount of computer memory and processing power is required for BIM software's, walkthrough and scheduling.

6.2 Future scope:

- In India the scope for BIM managers are so high.
- Slowly this technique is adopting everywhere.
- In countries like the UK, the Netherlands and Singapore, the demand for BIM skills are rising and BIM is expected to become the standard practice in the coming years. A number of design teams are planning to adopt BIM within the next three years.
- BIM not only adds value to the technology but also changes the process of designing and building.
- The same analysis of BIM workflow with conventional modeling can be performed for other structures dam, communication tower etc. and check its effectiveness

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