

A STUDY ON CONSTRUCTION INDUSTRY: BUILDING INFORMATION MODELING CURRENT ISSUES

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Abstract- The construction industry is one of the fast growing sectors in different countries. The construction industry requires low investment and help proper reliable profits towards in different functions of research and development in construction sector. The construction industry is facing an issue on skill people as well as infrastructure availability. Many on construction industries are facing problems due to lack of planning, controlling, managing and communicating with sub-contractors. This paper focused on the major issues is with sub contractor's relationship in construction industry. Construction industry requires high efficient skill people at different levels, so that the construction industry minimizes the waste. If construction industry consists of inefficiency of infrastructure then it will leads to high wastages. So construction industry requires integrated system to minimize the problems in segmentation. In construction industry functions, process implements many concepts and methods to improve the system

I. INTRODUCTION

As per United States of America labor statistics shows the construction industry consumes \$ 15.8 billion annually. (Kunz & Gilligan 2007; Hoffer, 2005) The performance development is important in construction industry by segmentation method so that the efficiency of construction industry gradually the segmentation in construction gives clear strengths and weakness so that it useful in minimizing the problem in construction projects. The segmentation in construction is emphasizing on culture and information useful in reuse system (Khemlani, 2007; Chew, 2004) Many construction projects in construction sector culture are an issue in changing designs, planning and cost. (Kunz & Gilligan 2007; Hoffer, 2005). So it is understood that the failures impacts directly in construction industry. It is also influenced from the external forces and design in construction decisions. The authorities are also facing difficulties in promoting particular collaborative environment as well as lack of proper communication. It is also identified the slow development process in construction industry due to the environmental forces as well as different interfaces effectiveness (Akenson, 2000; Meredith, Jack & Mantel, Samuel, 1989).

According to the many articles construction industry requires integrated system to minimize the problems in segmentation. In construction industry functions, process implements many concepts and methods to improve the system. (Eastman et al., 2008; Bartlett, & Ghoshal, 2000) The concurrent engineering, advanced technology such as web based project management, information models, three dimensional models and nD dimensional models are implemented in construction system (Fischer, & Kunz, 2006; Tosdal, 2001) These different models improve the construction system deliver efficiency at different levels in construction process. (Kitson, 2010; Nickerson, Raymond, Smith, & Wallach, 2004) There

are different solutions available for building information modeling is an important tool required to implement in construction industry for integrated factors. The integrated project delivery system introduced by American institute of architects to achieve the effective outcome of integrated project delivery. So the integrated project delivery is an important to achieve maximum benefits in building information modeling ((Khemlani, 2007; Baker, Sunny, Campbell, Michael & Baker, Kim, 2009) Many systems are supporting integrated practice to achieve efficient results in construction industry. (Guilding, 2006; Moore, 2007) The integrated design and delivery solution is one of the systems used in construction industry to improve the efficiency. The integrated design and delivery solution aim is improves the efficiency and reduce the project time by adoption of advanced techniques and methods in construction industry (Khemlani, 2007; Chew, 2004). The importance of building information modeling is speed up the existing system by using building information modeling extended by model three dimensional to nD dimensional modeling project. (Bazjanac, 2006; Moore, & Reid, 2008) The number of dimensions emphasize on total life cycle costing, environmental force, and other function in construction system. The building information modeling provides maximum strengths to the construction system to minimize the cost in maintenance and other functions. So it is understood that the building information modeling emphasize towards real construction system (Tadajewski, & Saren, 2009)

II. LITERATURE REVIEW

In this section author explore towards different stages to understand existing building information modeling for design consultants from different articles. This section describes research problem, research aim, research objectives, research questions,

concepts, and different building information modeling existing systems. (Bazjanac, 2006; Moore, & Reid, 2008) This section is emphasizing on two major areas such as building information modeling and readiness assessment. In these two stages author describes the concepts, issues which helps in problem identification. The problem statements help constructs the research aim and research objectives as well as research questions (Les Worrall & Cary Cooper, 2000) In literature review author discussed the use of building information modeling in the construction web cycle as well as strategy, plan, case study and other related factors towards building information modeling as well as readiness assessment. (Akenson, 2000; Meredith, Jack & Mantel, Samuel, 1989) The literature review is the backbone to understand the existing system and identifying the gap to develop building information modeling.

1.1. Components

1.1.1. Component information

The component information gives a clear detail of each element involved in building construction. It also consists of the dimensional model data. (Baker, Sunny, Campbell, Michael & Baker, Kim, 2009) The components in three dimensional models describe the specific location in relation to an original view. The components information such as door location, size, model color and type etc. the component information is essential to execution people as well as other stakeholders to avoid the mistakes and produce efficient results (Bernstein, & Pittman, 2005; Shaw, 2002)

1.1.2. Parametric information

It is a kind of objects in model so that the authorities modify the information based on parametric object. The information are visual, intellectual, so that the user knows the object number, qualities, density and in different parametric information. (Shaw, 2002; Tamilia, 2009) The parametric information helps to the designers to understand the geometry of the object so that the designers modify the objects based on the user's requirement (Eastman et al., 2008; Bartlett, & Ghoshal, 2000)

1.1.3. Linked Information

In graphical web based building information modeling linked information refers the information on each page because of it links to the invisible links. (Chun Zhang, Je_reyNaughton, David DeWitt & Qiong Luo, 2000) Normally visible links placed with flags on each page. The links are connected to proper objects so that objects are easily identifies the files in the database the linked information are user friendly so that different stakeholders views the required information on pages. This linked information also helps to the different stakeholders to view the required information (Bazjanac, 2006; Moore, & Reid, 2008)

1.1.4. External information

The building information modeling generates the external information such as construction schedule, manufacture details, specifications and other information of vendors. The external information is essential to the project authorities to share and communicate with external stakeholders. The external information looks like a catalogue so that the stakeholder extracts the information. The building information modeling generates catalogue in compatible format with proper references. Building information modeling features like object oriented database creation is an advanced technology to maintain intelligent objects. This object oriented database helps to generate required information in building information modeling efficiently. The object oriented database helps to generate required information intelligently for example the representation of construction, doors, windows and partitions information management in database efficiently with quantitative and quantitative format (Akenson, 2000; Meredith, Jack & Mantel, Samuel, 1989)

CONCLUSION

Virtual building suggests in general construction practice to manipulate the adjustments during the project period. These virtual mistakes do not have serious affects, because those modifications are identified before actual construction of the project, so that the project managements are well planned in various functions, objectives involved in project. The virtual model helps to the stakeholders to understand the modifications requirements in a real construction The virtual model is like a similar type of to understand the overall construction life cycle. To avoid the various issues from virtual model the building information modeling helps to the different stakeholders with two dimensional and three dimensional views. The building information modeling also describes the specifications, cost of data scope, schedule project.

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