

Integrated Building Information Modeling (BIM) System for Multi-dimensional Framework Application on Marine Projects

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Abstract

Marine industry has a great impact on the GDP in all countries. Marine projects demand a special construction technology. It contains structures like jetties, berths, dry dock, wharves, slipway, ship lift, navigational aids, offshore yard, shore protection works and dedicated foundation works in or near sea. Egypt, e.g., having 3000 Km of marines along Red sea, Mediterranean Sea and Suez Canal In addition, the strategic location of Egypt could pave the way to a more promising marine works in the near future. Management of marine projects is confronted with many challenges due varied relations between numerous stakeholders and it is adversely affected by whole industry problems especially in the public sector. It is mainly due to various managerial problems that public sector is facing compared with private sector. Waste, claims, rework and low productivity are extreme examples of managerial problems. This paper is aiming to investigate factors that impact the efficiency of marine project management process. It also aims to support interoperability by developing integrated information system to close information gabs. To achieve these objectives data collection model was designed to gather data from projects constructed in the last decade. To validate data collection model it should be tested on a small scale project. Seven marine projects are selected for this purpose. The analysis indicated that factors that have impact on the management process including: insufficient site investigation data, change orders, security precautions, bad climate conditions, uneconomic design, poor supply, low consideration given for health and safety and finally inadequate planning. Building information modeling (BIM) offers the solution for those problems through various features like; 3D-modeling, clash detection, schedule and cost estimation etc. which could strongly enhance project parties for achieving better benefits and narrow information gabs.

International Journal of Management (IJM) 2016, October