APPLICATION AREAS OF GIS IN CONSTRUCTION PROJECTS AND FUTURE RESEARCH DIRECTIONS

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Abstract
Geographic Information System (GIS) is being utilized to meet construction project’s various requirements in different stages. Literature shows that GIS is an indispensable technology in supplementing the already existing capabilities of the construction industry in which widely used construction planning and management tools are lacking, even then, GIS is not being linked with the construction industry. To bring GIS as a huge opportunity for the construction industry, construction industry professionals must stay informed about GIS issues and advancements in the application of GIS technologies in construction. The primary objective of this paper is to explore potential application areas of GIS technology for the construction industry for wider use and implementation in real life projects. Literature shows that full potential of GIS for the construction industry still is yet to be discovered. Hence, several research areas worthy of further investigation have also been highlighted.

Keywords
GIS; Construction; Construction Industry; Construction Management.

INTRODUCTION

Construction is about making the world work by creating infrastructure to support society and the nation. The construction of buildings, roads, dams, bridges, public utilities, and other forms of infrastructure are the significant components in the development of the nation. Construction involves all aspects of problem solving, from problem recognition to the implementation of a fully operational solution. Construction companies/contractors are generally assumed to take the responsibilities of completing projects in a specified time, cost, and quality. In doing so, they accept legal, financial, and managerial obligations (Abudayyeh et al., 2004). Therefore, efficient construction management becomes an important aspect of any construction work.

The construction industry is essentially a service industry where management revolves around the close follow up of laid down procedures. It is quite complex and highly individualistic in character. Works in the construction industry are defined by design drawings, layouts, routes, blueprints, execution schedules, cost estimates, specifications, etc. which are maintained separately by various team members. Professionals working in the construction industry have to go through such information which is difficult to bridge together. Architects, engineers, contractors, owners, and operators face challenges due to varieties of information formats used to