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Title : A FRAMEWORK OF THE ECONOMIC FACTORS AND COST IN THE IMPLEMENTATION OF MECHANISATION AND AUTOMATION (M&A) IN INDUSTRIALISED BUILDING SYSTEM (IBS) APPROACH

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Industrialised Building System (IBS) has been introduced to promote a systematic construction process. The application of IBS offers numerous benefits such as cost, time reduction and enhancing construction quality and safety. In the Malaysian construction industry, IBS application was also expected to minimise the dependency on unskilled foreign labour. Therefore, the aim of this research is to develop a framework on the economic factors and costs in the implementation of Mechanisation and Automation through IBS approach in the Malaysian construction industry. Mixed methods of quantitative and qualitative research of data collection were adopted. Empirical data for quantitative research was gathered via questionnaire survey and qualitative data was collected via case studies. The data analysis is carried out qualitatively (thematic content analysis utilising ATLAS.ti software) and quantitatively (descriptive and inferential statistical analysis utilising Statistical Package for Social Science (SPSS) and Microsoft Excel. The findings from the research were used to develop a framework for economic factors and cost in the implementation of Mechanisation and Automation in IBS approach which as validation to confirm its external validity. The results reveal that M&A in Malaysia have shown a positive development and increasing levels of competitiveness. Apart from that, the increasing complexity of factors

would entail greater needs on their influence on the economic factors and costs in IBS approach. The findings also signify that IBS has a major role to play on the control of M&A, mainly in terms of cost, labour, plant and material. However, IBS is yet to feature prominently in the control of M&A agenda in the Malaysian construction industry. There is evidence in M&A application is to minimise the dependency on unskilled foreign labour; increased productivity and quality of work through the use of systematic machinery, equipment, materials and extensive pre-project planning. Economic factors and cost in the implementation of M&A in IBS construction approach have been developed, tested and validated. However, cost impact appears to be a major hindrance in preventing the construction industry players from using IBS. The perceived high cost of IBS solutions, unless balanced by an understanding of value, will result in a continued reluctance by the industry to more fully embrace the approach. The study recommends, to expand the industry towards a high level of industrialisation and the business process involved in the application of IBS.