

# **Development of Cost Planning Standard for Mechanical and Electrical Work on Stadium Main Building Area using Design and Build Contract to Improve Cost Accuracy**

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## **Abstract**

Design and build contract practices in Indonesia, especially in stadium construction project, has been arising so many disputes recently. These disputes occurred because there were many differences during the post-project audit phase between the Audit Board of Indonesia (BPK) and the contractor as the construction service provider. It occurred because initial total cost estimated for the project was low on its accuracy compared to project actual cost. The non-existence of a standardized cost planning and set of specifications following it are the issues that researcher has been focusing on, especially on mechanical and electrical work matters since it consists of most work items of the whole project. The project cost has to be divided into three main categories that are standard cost, non-standard cost and other cost, therefore, fractionated based on its area of working to get each percentage. It developed based on literature review from several regulations existed and from various past projects' bill of quantity and detailed engineering design. Furthermore, SPSS and Monte Carlo method has been used to find its cost per meter square and cost per seat. In order to find the mathematical model to improve cost accuracy, SPSS and structural equation modelling have been used to test each variables' indicators which raw data given by respondents' questionnaires and it found that the three independent variables are all significantly positive toward the cost accuracy. This developed set of standards therefore taken into some experts to be validated.

## **Keywords**

Dispute, design & build, cost planning standard, stadium, and mechanical, electrical