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Forecasting models of conventional figures of public projects in Greece

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ABSTRACT

The construction sector is a vital sector to the European economy and one of the most important sectors for the Greek economy. One of the European Union's strategies comprises of investing in numerous construction projects to all its member states, especially in transportation, aiming in their financial and social growth.The implementation of transportation projects became more frequent in the second half of the 20th century due to the rapid evolution of technology. Despite the high number of transportation projects completed, overtime and over-budget projects are frequent events. These facts mostly rely on the Greek legal framework, regarding the funding and constructing, that governs such projects.This thesis aims to develop a mathematical model to predict the construction time of a transportation project based on 37 projects that were studied which included independent variables, known at the outset of the project (tendering phase). All the 37 projects were tendered, cost estimated and constructed based upon the Greek legal framework controlling such projects. Purpose of the model is to assist the Contracting Authority in determining the time of completion of the project. Furthermore, it is attempted to develop a model that will predict the deviation of the estimated and the actual time of completion. Regarding the cost estimates, models will be created that will predict the budget to be tendered and the initially contracting project. All the aforementioned models will be documented based on their reliability and predictability.In order to create the models of prediction, at first, relevant data were collected for the projects and a statistical analysis of their parameters was carried out. Next, the potential associations among the variables described were found and they were processed by the method of linear regression to extract the mathematical model. Therefore, the models of predicting the estimated time of completion and the estimated budget were formed containing a sufficient level of prediction.