Summary

In Singapore, the public industrial sector is fast growing with long-term development plans to increase and upgrade its current stock of industrial buildings. This is to cater for the booming manufacturing industry, where companies require more new industrial facilities to carry out their manufacturing operations. The anticipated rise in demand for the construction of public industrial buildings would at the same time generate a large volume of tendering activities. Therefore, the need for information support arises in the area of competitive tendering for public industrial projects.

This thesis aims to illustrate the use of computer technology to compile and generate bidding information at the industry level. It is based on the premise that the generated information on tender price levels and bidding characteristics will encourage contractors in adopting a more systematic and strategic approach to competitive tendering. Eventually, clients will benefit from more realistic and competitive bids submitted, of which the lowest offer would provide the best value for money.

Data from 111 tender competitions of public industrial projects held between 1980 and 1991 were collected for the purpose of this study. They were stored in two different databases; one is used for the compilation of a tender price index and the development of a forecasting model; and the other is for carrying out bid analysis so as to generate bidding characteristics of the public industrial sector.

In the development of a time series forecasting model for tender price index, it was found that a low order autoregressive model of differenced series provides the best-fit model. This has been found to correspond with findings in the United Kingdom. The model was subsequently used to make predictions of future tender price index of public industrial projects. The analysis of past bids derived some general information on the bidding characteristics of the public industrial sector. It also identified significant relationships among some of the variable factors involved in competitive bidding which can be used to predict the course of future events. The application of the generated information on tender price index forecasting and bidding characteristics in competitive tendering would greatly help the construction industry to move towards the era of Information Technology.