AN INVESTIGATION INTO THE CONSTRUCTION PERFORMANCE OF HIGH-RISE COMMERCIAL OFFICE BUILDINGS BASED ON PRODUCTIVITY AND RESOURCE CONSUMPTION

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Abstract
This paper considers recent findings on the comparative performance of high-rise commercial office building construction worldwide. The research comprised a survey of 78 real projects across twelve countries. The proposed hypothesis that increased unit costs, which reflect more complexity or higher quality, translate into decreased productivity rates was not proven to be a strong relationship. A number of other relationships were found to demonstrate strong correlations. The paper concludes by establishing a performance index methodology that can be used to compare construction performance across projects.

Keywords
productivity, resource consumption, comparative performance.

INTRODUCTION

Background
Governments and agencies are always interested in benchmarking the performance of industries against international competitors. The construction industry poses particular problems in this regard, as its products are generally non-standard, complex and combine a sophisticated range of inputs.

Construction projects can be described by their cost-time-quality relationship (Best and de Valence 1999; Ferry et al. 1999). The nature of this relationship is generally understood but largely based on empirical studies. When analysing cost between countries, it is not possible to arrive at correct judgements unless the implications of time and quality are embodied in the calculations. Performance clearly includes all three aspects.

Previous studies have been limited and tend to focus on cost comparisons expressed in a common currency (such as $/SS). While these comparisons may be useful at a coarse level, they do not address issues unrelated to or only partly related to cost. A broader methodology is needed to arrive at meaningful conclusions, especially where a range of contextual factors apply, such as would be applicable in a comparison between a developing country and a developed country.

This study was commissioned by the Department of Industry, Science and Resources (DISR) in Australia in an attempt to benchmark the performance of construction projects in a range of countries, and with a view to placing Australian performance in context. Previous research has been inconclusive and in some cases undertaken within narrow frames of reference.