AN APPLICATION OF MULTIPLE REGRESSION ANALYSIS (MRA) AND EXPERT SYSTEMS IN THE VALUATION OF RESIDENTIAL PROPERTIES FOR RATING PURPOSES

A CASE STUDY: SECTION 17 AND SECTION 18, SHAH ALAM

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"If only the sun-drenched celebrities are being noticed and worshipped, then our children are going to have a tough time seeing value in the shadows, where the thinkers, probers and scientists are keeping society together."

Rita Dove, Quoted in The New York Times

from Reader's Digest, January 2000

ABSTRACT

Previous researchers emphasised only on using the statistical based techniques for property valuation without realising that knowledge gained by experts is as important as statistical analysis. Others carried out separate research on statistical and knowledge-based techniques for example Husin (1991) undertakes researches on Multiple Regression Analysis (MRA) whereas Nawawi et al (1997) on Expert Systems (ES). Not many is aware that Expert System exist especially in developing countries like Malaysia. The introduction of ES has to be carried out and this project will be one of the approach.

The approach of this final year project is to study and underline the conceptual differences, methodology and analysis of both techniques; statistical inference and knowledge-derived techniques. The project gives a bigger scope of research as Ralph W. Sockman in Now To Live! from Reader's Digest quoted, "The larger the island of knowledge, the longer the shoreline of wonder."

Interview to create a prototype for ES from the Shah Alam Municipal Council (MPSA) and data collection from the MPSA and Selangor Property and Valuation Services (JPPH) were the main source of this project. Even though there is limitation such as the failure to create the author own ES model, this project gave an insight on the methodology of the development of both model.

In conclusion, the project has developed a new approach to the introduction of ES in valuation and a model for MRA, highlighting on the differences in both concepts and the methodology of development with certain limitations and constraints.

CHAPTER 1: INTRODUCTION

This chapter will outline the overall view regarding research problem, objectives, methodology and the organisation of chapters of this final year project.

1.0 RESEARCH PROBLEM

Nowadays, people realise about the importance of computers in everyday activities. Many government or private bodies use computer system to assist them in their work. With computers, results are obtained faster and speedier. The use of computers are also getting more significant in property sector. With the new technological advancement in computer, many programs have been created to aid property valuation. They are generally referred to as Computer Added Valuation (CAV).

There are four techniques in CAV: Expert System, Multiple Regression Analysis (MRA), Artificial Neural Networks (ANNs) and Case-based Reasoning (CBR). Expert System is defined by McCluskey et al. (1996) as a computerised technique representing human expertise which can emulate and perform the functions of an expert and/or perform tasks which require a certain level of expertise.