

## **Modelling a multi-objective allocation problem in a government sponsored entrepreneur development programme**

### **ABSTRACT**

Typically the vendor allocation problem for a commercial company requires the buyer to allocate business between the selected vendor suppliers to meet its needs at minimum cost, taking account of its quality and delivery performance requirements. However in a government sponsored entrepreneur development programme, the allocation of business cannot only be made dependent on criteria that reflect the current ability of the vendor nor solely on criteria fulfilling the current needs of the buyer. It must also consider how it may aid the vendors to improve their business performance in the future and also on how it affects the development of that indigenous industry sector. Furthermore, conditions change from one year to the next so the problem is dynamic over time.

This paper describes how a combination of Goal Programming model (GP) with pre-emptive priority ranking of goal constraints with a linear programming model facilitates allocation of businesses to entrepreneurs. In particular, the subject used in this paper is a Malaysia Government sponsored entrepreneur development programme for furniture maker, which administered by a commercial company. An innovative aspect of the work is the use of GP as a modelling rather than a solution technique. It is used to convert the conflicting multi-objectives that were expressed only in general policy terms to operational terms on which business could be allocated. The paper shows how it can be used to try to understand, and then formally model how managers use their judgement and experience in a complex multi-criteria situation. The paper goes on to show that using the formal model leads to more consistency in decision-making and an improvement in the achievement of the objectives. This is important as several different managers are having to make independent decisions on subsets of the vendors.

**Keyword:** Multi-criteria decision making; Vendor allocation; Goal programming; Linear programming