

## INTRODUCTION

Network analysis techniques were first introduced as planning and scheduling aids in the late nineteen fifties. Since then they have been used by many contractors, private and public, in the developed countries. Comprehensive surveys have been done in some of these countries.

### 1. SUMMARY

Network analysis based on the PERT(1) and CPM(1,11) methodology has been in existence for about twenty-five years. During this time quite a lot has been written about the basic technique and the several extensions for example resource analysis, multi-project systems, GERT (15,16) and Decision CPM. Despite these advances, there exists a large theory-practice gap in local manufacturing industry.

The results of a survey carried out in local industry highlight the fact that among local manufacturing export firms there is a connection between the size of the company and the probability that it would use network analysis. This is because larger companies need better control of their resources and hence use more sophisticated management techniques such as network analysis. Also there is a greater chance that management personnel of large firms would have received formal training. This may not be the case with smaller firms. However, even with firms that use network analysis, the level of use is low and restricted to networks with less than fifty (50) activities. The focus should therefore be to narrow the theory-practice gap by encouraging greater use of the technique.

A survey of the software suppliers shows that there is only a small number of network-based computer programs available locally despite the large number of programs known to be available from foreign sources. The software suppliers could also assist in expanding the use of the technique locally if they were to acquire more technical knowledge of the software and engage in aggressive selling techniques. They could then assist in educating company managers about the technique and in so doing boost their own sales. This is one method of narrowing the theory-practice gap seen locally. Other methods suggested for consideration include education at school and university level (pre-industrial) and education of top management(industrial level) about the technique.

The industrial application of network analysis is demonstrated by developing a multi-project network system for planning and implementing annual turbine overhauls and providing adequate management information to the various management levels. The PS02 computer program is used to carry out preliminary analysis of resource requirements.