

A STUDY OF RESEARCH AND DEVELOPMENT MANAGEMENT SYSTEM

by

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## INTRODUCTION

The purpose of this report is to study and understand the research and development management system and its dynamic behavior. The report is mainly based on the Ph.D thesis done by Roberts (3) from M.I.T. . An attempt is made to summarize the mathematical model developed by Roberts. Some modifications are made in the flow diagrams for each activity in order to simplify the model and to simulate the possible structure for failures of R and D management.

Roberts (3) used a quantitative approach to represent the life cycle of R and D organization. He used the Industrial Dynamics approach to study R and D systems. Throughout his simulation work Roberts used DYNAMO language. The model consists of about 200 variables, 40 initial conditions and approximately 70 constants. To understand the details of Roberts' model his simulation results are reproduced. Also some changes are made in the structure of R and D to simulate the reasons for failures of R and D management.

Much of the literature available on R and D systems deals with qualitative rather than quantitative approaches for R and D management systems.

Hamberg (21) in his book' R & D Essays on the Economics of Research and Development' described the statistical analysis of the determinants of the research and development in industry. Howard (22) gave a descriptive approach to R and D organizations in his book. His approach is mainly concerned to those people in the organization who actually perform the work of managing the establishment. Marschak, Glennan, and