

STRATEGIC PLANNING FOR QUALITY AND PRODUCTIVITY USING FLEXIBLE SYSTEMS METHODOLOGY

by

MOSTAFA JAFARI

Department of Management Studies

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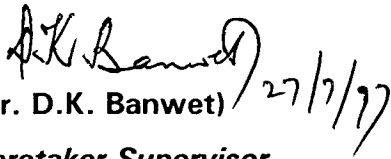


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CERTIFICATE

The thesis entitled "**STRATEGIC PLANNING FOR QUALITY AND PRODUCTIVITY USING FLEXIBLE SYSTEMS METHODOLOGY**", submitted by **Mr. MOSTAFA JAFARI** to the Indian Institute of Technology, Delhi, for the award of degree of **DOCTOR OF PHILOSOPHY**, is a record of bonafied research work carried out by him. He worked under my guidance and supervision, and has fulfilled the requirements for the submission of this thesis which has attained the standard required for Ph.D. degree of the Institute. The results presented in this thesis have not been submitted elsewhere for the award of any degree or diploma.



(Dr. D.K. Banwet)

Caretaker Supervisor

Professor

Department of Management Studies
Indian Institute of Technology, Delhi

(Dr. Sushil)

Research Supervisor

Professor and Head

Department of Management Studies
Indian Institute of Technology, Delhi

27th October, 1996

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Trail blazing is an arduous, pains-taking methodical work; research essentially is such a task sifting through a jingle of intellectual plethora trying to find a new path, a new meaning, a new interpretation to the existing philosophy.

By virtue of its sustained high brow format it essentially requires the assistance of a variety of associates. All by himself a scholar may not be successful in his targeted goal.

It involves conception of new ideas necessitating follow-up action in at least two places.

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ABSTRACT

This study aims to evolve a methodology to develop a strategic plan for managing quality and productivity in a manufacturing unit. A comprehensive literature review was undertaken to find gaps in the process of strategic planning for quality and productivity. Issues involved in the strategic planning process were identified. These issues were further validated by preparing two cases after interviewing top management executives involved in managing quality and productivity. The study comprised of a macro study to crystallize the key issues, and a micro study to implement the methodology for strategic planning.

A questionnaire survey to assess awareness of systems methodology and its use in strategic planning was undertaken , in macro study, involving 90 manufacturing and service organizations. Results of this survey served as a motivation to evolve a methodology, using systems techniques for the purpose of strategic planning in general, and for quality and productivity in particular.

The study design for micro study comprised three phases involving learning, scenario building, and evolving strategic plan interactively. The study design has been evolved using integration principle of flexible systems methodology. Three techniques have been integrated to take care of three phases of the study. Soft Systems Methodology (SSM) has been used for acquiring knowledge about the pertinent issues involved in the planning process which are specific to an organization. A workshop was conducted based on the principles of SSM to generate knowledge of the working of the organization and improving upon the existing systems. For generating new ideas for improvement in existing systems techniques like Brain Storming, Nominal Group Technique (NGT), and Idea Engineering were used. This phase also helped in understanding the basic problems related to strategic planning for quality and productivity in a given practical situation. The input to this phase is problem definition

and output is clear understanding of the problem situation, procedures being carried out by subject organization, and a base for modelling. The research design was implemented in the case situation of Allen Bradly India Limited (ABIL).

Modelling system dynamics was the second phase of the study. This phase helped in developing a comprehensive model illustrating the working of the organization. The model involves 17 level and 124 auxiliary variables and has been developed in 17 modules, one for each level variable. The modules of special interest are quality, productivity, satisfied customers, lead time, modernization, vendor development, market leadership, funds available, and quality training they have contributed significantly in scenario building. The quantification of variables involved in planning not only helped in scenario building but also indicated leverage points. The study takes the quantitative mode from qualitative one in this phase.

Interactive Planning was the final phase of the study which takes output of the previous phase as input after due validation from decision makers and people involved in the process of strategic planning. This phase helped in evolving an strategic action plan interactively and provided a framework for strategic planning in general. The design of action plan is highly modular in nature and provides tremendous flexibility to accommodate the future changes as may become implied in due course of time in view of dynamic environment. The framework evolved in the presented work can be generalized for strategic planning of other crucial functions in the organizations with greater ease. The action plan, evolved using the framework, provides clarity in implementation to the people at all levels of management. The limitations of the study have been outlined, and indications for future work are provided. The study concluded with evolution of Waterfall model which shows the integration of methodologies and eventually provides an action plan.

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