

MODELLING AND ANALYSIS OF CORPORATE MANPOWER PLANNING PROCESS FOR TIME-DEPENDENT CAREER GROWTH POLICY

by

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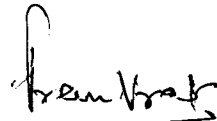
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CERTIFICATE

The thesis entitled 'Modelling and Analysis of Corporate Manpower Planning Process for Time-Dependent Career Growth Policy' being submitted by Mr Krishna Mohan Mital to the Indian Institute of Technology, Delhi, for the award of the degree of Doctor of Philosophy, is a record of bonafide research work carried out by him. He has worked under our guidance and supervision, and has fulfilled the requirements for the submission of this thesis which has attained the standard required for a 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.



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A B S T R A C T

This thesis aims at developing a methodology for modelling and analysis of corporate manpower planning process for a case in which employees career growth is time-dependent and is in keeping with organisational goals and individual aspirations. It has been endeavoured to study the problem of corporate manpower planning in entirety covering all related aspects such as decision-making for choice of policy-parameters; manpower demand estimation for three most prevalent conceivable work-situations, namely, when individuals work in offices, engaged in operating machines, and deployed in service-situation serving the waiting queue ; and estimation of manpower availability at successive time intervals after taking into account projected wastages in manpower stocks.

In the review section, apart from a comprehensive review of varied techniques of corporate manpower planning developed over the years, state-of-art survey of manpower planning as practised by private and public enterprises in India is carried out with a view to identify directions and areas of research which forms the subject matter of the thesis.

Different policy-testing models developed relate to estimation of total manpower stocks, ratio of 'normal' to 'flier' promotions, organisation profile (fraction of employees in different grades), gradewise mean ages and employees wage-bill at different time intervals during plan period as dependent on adjustable employees career growth parameters and pay-scales. Concept of 'normal' and 'flier' promotion in the context of manpower planning in business organisations in India is a new phenomenon. Application of Markovian processes to model this kind of typical Indian situation is therefore considered to be a new endeavour in this direction which has not been modelled earlier.

Apart from policy-testing models, it is also attempted to develop a set of models and techniques for manpower demand estimation in common work situations and turnover (wastages) which forms an important data input for the policy-testing model. In the demand model for estimating office staff a new factor for absenteeism on account of participation in

training courses and seminars whose incidence is rising high in the organisations these days is additionally considered. Similarly in the demand model for estimating staff engaged to operate machines, based on results of empirical studies carried out in this respect, employees' labour productivity is taken differently during normal and overtime periods which is considered to be distinctive feature of the model. Manpower requirements in service situations are best analysed with the help of queueing theory. In this exercise for estimating manpower demand estimates in a health centre, a set of queueing characteristics such as incidence of excessive waitings rather than mean waitings which were not earlier used for manpower planning purposes have been made as the basis. Backed and supported by the findings of an empirical study, it is also endeavoured to develop a multiple regression model for manpower turnover which is taken as dependent on gradewise mean ages and manpower stocks.

Finally in the end, based on comprehensive synthesis of research reported in different chapters, it has been attempted to highlight contributions and limitations of the research pursued, and scope for further research in related areas. The thesis concludes with a detailed bibliography and a set of appendices which include source - listing of various computer programs developed and their detailed system flow-charts.

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