Mircea Malița, Corneliu Zidăroiu

THE MATHEMATICS OF ORGANIZATION

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Being one of the recent appearances in the field of operational research, the work "The Mathematics of Organization" by M. Malița and C. Zidăroiu has the first great merit of a clear and explicit systematization of the material, which usually is missing in all similar works.

The linear, non-linear and dynamic programmes, the strategical games, the aleatory problems and the theory of graphs — as extensions of linear programming are thus delimited in the category of optimization methods. The second group — that of statistical analysis problems — adds to the traditional statistical methods of dispersional, factorial analysis and of statistical control of quality those of the theory of equipment, the theory of expectation and the theory of stores. Already in the introduction to the book, the authors propose elements for delimiting the framework of operational research from the point of view of the direction assumed by the decision process used in various operational situations, outlining the major decisional role of the cost, production function for the taking of a correct decision from the economic and organizational points of view. In this way, the authors evince the possibility for a unitary interpretation of the operational research methods, proposing the term of "technology" — the science of the organization of the elements contributing to the result pursued.

The treatment — which is not loaded with mathematical knowledge which is not strictly necessary for the formulation and understanding of the examples presented — is extremely systematic, gradually pursuing the degree of complexity of the models: linear, nonlinear and dynamic. The examples used are well chosen and are placed in the fields of production, scheduling, investments, etc. so that their solution allows the readers' becoming familiar with concrete economic problems; from the didactic point of view, the development of the examples is stimulative, since all the aspects of computation are not being deliberately solved, letting readers the possibility to study thoroughly the solution to the examples for the suggested variants of solution.

We note the way of presentation of the optimization situations in conditions of uncertainty, which in the chapter devoted to aleatory programmes are successfully generalized in the problems with minimum risks.

We also outline the mathematical rigour of the description of the tests for verifying the statistical hypotheses, resulting an extension of their field of applicability.

In the problems of the replacement of the equipment, the general model approached by the authors offers possibilities for solving complex situations, in the event that the use of simplified models is improper.

Developing with priority the mathematical-statistical methods with an immediate economic-organizational applicability, the book of M. Maliţa and C. Zidăroiu is useful to the broad mass of engineers and economists with current preoccupations in this field and to the students; as it allows not only the familiarization with operational research problems but also a complete and systematic acquiring of the elements of this discipline, the book is making an important contribution on this line.

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