SCANNING THE ISSUE

This special issue of the Periodica Politechnica summarizes the most recent research activities of a group faculty and associated members of the Department of Industrial Management and Business Economics. There is a lot of controversy about the content of **management science** in general and there are even more debates concerning its role at the Technical University of Budapest. A lot of misinterpretation of this term and its content fostered the criticism of the field. This issue illustrates how management can be approached in a scientific way and how it can contribute to the high scientific standards in an engineering oriented academic environment.

Production and operations management is defined as the management of direct resources required to produce the goods and services provided by an organization. The scientific basis of this activity is termed as 'management science' or 'operations research' and the two expressions are used equivalently. This fact is well illustrated by the new name of the most important international scientific association of this field, 'The Institute of Management Science' (TIMS), is now known as INFORMS (Institute for Operations Research and Management Science). Management science is defined as the scientific methodology of the optimal planning and control of systems. At the Technical University of Budapest, an engineering school in Anglo-Saxon terminology, the focus of the Department of Industrial Management and Business Economics is on production systems. Most of the research activity of this department focuses on the management decision problems generally found in production systems, specifically on the manufacturing process. This collection of papers tries to emphasize those research areas which are important in an engineering school, based on outstanding scientific activity in the past, and which are considered strategic areas for the future.

The first four papers are from the field of operations management. The paper of Koltai and Lozano shows how the throughput of a flexible manufacturing system can be analyzed with perturbation analysis. The paper of Kövesi is about the cost analysis of different maintenance strategies. This type of cost analysis is refined in the paper of Andor where the time value of money is incorporated in the analysis. Finally, the paper of Bako provides a linear programming model for the maintenance problems

of roads and highways. All four papers illustrate a strong commitment to the scientific analysis of production management problems and to the importance of applying quantitative tools to support production management decisions. This latter issue has to be emphasized because there is a general misconception that management science is a soft, fundamentally qualitative field with not much relevance in an engineering school.

The next three papers follow the strong research tradition of the department in decision theory. The paper of Farkas and Rozsa scientifically explains the reason of the rank reversal problem in AHP. The paper of Pataki directs the attention to some general shortcomings of the traditionally applied decision criteria. The work of Nemeslaki recommends some ways to complete the tools of project management with a risk assessment capability. Decision making in a complex environment is difficult and the investigation of the tools for this process remains one of the most important research directions of the department.

Conclusively, the paper of Ferke shows that although operations management problems are important, we should never lose the focus of the whole strategy of the firm. The emphasis of strategy in the teaching of the different functional areas of management is analyzed and contrasted with the problems of real life conditions in Hungary.

This special issue of Periodica Politechnica tries to make clear some of the research priorities of the department. From now on Periodica Politechnica will regularly publish special editions from the field of management science to highlight the important role of management in the Faculty of Natural and Social Sciences.

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