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TECHNICAL SYSTEMS

(Systemtechnik)

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The development of technical systems involves the application of the most up-to-date methods used in the management system; it follows that this is a highly complex problem pertaining to related disciplines in the field of engineering, politics, economy and sociology. Modern management is based on an uninterrupted decision making process aiming at the optimal directing of the sequence of effective steps taken towards a successful fulfilment of the goals set forth. Complete and consistent information is needed in order to achieve this purpose, as well as appropriate methods for measuring the results thus obtained. We can thus ultimately point out the modern systematization and quantification trend, which is applied by means of the decision making methods and technique at the enterprise level. This situation warrants the assessment made by J. T. Stamper, according to whom management is an art on its way of becoming a science.

As H. Wenzel has pointed out, the technical systems have certain similarities to phenomenological thermodynamics. It follows that if accurate and appropriate methods for describing the technical systems have been devised it becomes feasible to direct their behaviour.

The system concept itself must acquire wider implications. In the author's opinion, a system consists of joining together all the technical and organizational means available, with a view to autonomously accomplishing a complex set of tasks. The fact that technical systems cannot be autonomous, i. e. they cannot be "closed" systems in the thermodynamic sense of this term, is omitted and it is considered that they consist of the central system (the nucleus) and a great many subsidiary peripheric appliances which insure the operation of the entire complex set within the existing economic and political structures. A communication system which uses the satellites is described for illustration purposes.

Management by systems is analogous to a contact point through which the communication exchange occurs and through which the coordination activity between the person issuing orders and the person receiving the orders takes place, in accordance with practical, well established regulations. The person who issues the orders can be designated specifically, or even remain anonimous, as is the case for the customers who determine the market needs.

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