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Institute for Operations Research and the Management Sciences

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What is OR/MS?

Operations Research (OR) and the Management Sciences (MS) are the professional disciplines that deal with the application of information technology for informed decision-making.

OR/MS Professionals aim to provide rational bases for decision making by seeking to understand and structure complex situations and to use this understanding to predict system behavior and improve system performance. Much of this work is done using analytical and numerical techniques to develop and manipulate mathematical and computer models of organizational systems composed of people, machines, and procedures.

OR/MS draws upon ideas from engineering, management, mathematics, and psychology to contribute to a wide variety of application domains; the field is closely related to several other fields in the "decision sciences" -- applied mathematics, computer science, economics, industrial engineering, and systems engineering.

OR/MS is distinguished by its broad applicability and by the wide variety of career opportunities and work styles it embraces. OR/MS specialists may be theoreticians or practitioners. They may work in academia, in industry, or in public service, teaching, doing research, consulting, or implementing OR/MS models. OR/MS professionals may participate in just one phase of an OR/MS study, such as modeling, analysis, or implementation, or they may participate in all portions of a project. Within the field, some OR/MS professionals remain generalists while others specialize in particular tools or problem domains. Some OR/MS professionals move from technical positions into managerial functions. Because the concepts and methods of OR/MS are so pervasive, OR/MS offers very flexible career paths.

Today thousands of individuals pursue careers in operations research, the management sciences and closely related professions. Their work has achieved an increasingly important role in both the public and private sectors. OR/MS professionals inform public officials on such topics as energy policy; design and operation of urban emergency systems; defense; health care; water resource planning; and criminal justice. They also address a wide variety of issues in communication systems; computer operations, design, and networking; transportation; marketing; finance; inventory planning; manufacturing; and many other topics that aim to improve business productivity. In addition, recently some OR/MS professionals have contributed to the physical sciences (in biology, chemistry, and physics).

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