

# Risk and Decision Analysis

Risk and decision analysis are at the kernel of a broad number of professions, each dealing with risk in its own way – its definition, its measurement, its analysis, its valuation and its management. Each approach is based on needs, experience and know how, originating in the large experience acquired by necessities each profession is and has been confronted with when dealing with uncertainty and its consequences.

Recent advances in Risk Mathematics, Risk Science and Risk Economics and Management have combined to provide a far greater awareness of the risks we are subjected to (financial, operational, industrial, social, environmental – weather and global warming, security and safety, engineering, health hazards, etc.) and how to confront them. This has contributed to a convergence, to a synergy and to a cross fertilization across the many professions for which risk is now an essential issue to reckon with. It is these trends that underlie the intent of this journal, *Risk and Decision Analysis*. It will also seek to contribute to a greater awareness of practices and advances propounded by quantitative, statistical and non-quantitative approaches that contribute to our dealing with risk.

For example, Finance and Insurance have converged, opening up new frontiers in the pricing of natural risks, market pricing of common contracts in life insurance and the plethora of tools used to protect ourselves from the underlying risks that besets our individual and collective lives. Similarly, engineers and industrial managers design processes for reliability, security, safety and robustness. They do so to reduce failure probabilities and apply robust design techniques to reduce processes' sensitivity to external and uncontrollable events. Marketing has also recognized the uncertainty associated with consumer choices and behavior, to sales response and to the marketing mix. For these reasons, marketing also is intently concerned with managing risks. This is particularly true for new markets, innovative products. Evolution of markets qualifies as a strategic risk.

These examples, among many others, highlight the pervasiveness of decisions and the risk mathematical analyses currently confronted and expanded by most professions. By the same token, Banks, Global Indus-

trial and Service Firms, Health Care, Drugs Development and Management, Bio-Engineering, Social NGO Networks, Urban and Public Management, etc., operating at times as collaborating economic entities are facing risks to be confronted by complex organizational frameworks and decision processes to which a stream of methodological approaches are now used.

Consequently, we see also the expansion of risk professionals, with general techniques of probabilistic risk assessment (PRA), which can be applied to all kinds of problems; in agriculture, in industry, in services, for infrastructures, for projects, for health, etc.

This state of affairs is accrued by globalization, complexity and new risks like environmental risks and security risks. It is important to emphasize also that new regulations like Basels I and II and Sarbanes Oxley Act call for a comprehensive approach to risks and their management. Government and public agencies are requested to incorporate risk analysis techniques in their activities.

All these elements lead to a need for a *convergence* between all these approaches, in particular between finance and industry on risk and decision analysis.

On the academic and research side, we have witnessed a substantial progress as demonstrated by the boom in quantitative methods in finance, but also in other fields; in supply chains, in engineering, in complex systems. We see common aspects between all these developments, which justifies our strong belief that Risk Analysis should be considered as a new *scientific* domain, not just a set of techniques.

This is the objective of this journal: to promote this new science. Because it is a new science, justified by so many applications, there is a need to pull together a scientific progress and its practice in applications. Thus, professionals will find in this journal examples and cases which could help their specific domains, whatever they are. Scientists will find not only new results, but also a source of new research topics.

This is why the journal welcomes both theoretical and application papers. In addition, there will be a number of special issues with guest editors, focusing on specific problems of interest to risk managers.

In this way we keep the goal of generality, while keeping the interest of focusing.

We are happy to have assembled an Editorial Board, comprising outstanding and recognized experts, with different backgrounds and interests. This is documented in the web site. We strongly recommend contributors to send their article to the member of the Editorial Board who is the best qualified to handle the manuscript. Members of the Editorial Board have full responsibility to deal with the articles that they receive.

We have taken this initiative because we strongly believe that the field deserves a new journal, focused on

the goals that have been outlined above. We are grateful to IOS Press, a strong supporter of scientific journals, always willing to take risks for the sake of innovation, to have accepted to be the publisher.

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