

1. Record Nr.	UNINA9910254901503321
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Titolo	Sensitivity Analysis : An Introduction for the Management Scientist // by Emanuele Borgonovo
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2017
ISBN	3-319-52259-0
Edizione	[1st ed. 2017.]
Descrizione fisica	1 online resource (XIV, 294 p. 68 illus.)
Collana	International Series in Operations Research & Management Science, , 2214-7934 ; ; 251
Disciplina	658.4034
Soggetti	Operations research Management science Operations Research and Decision Theory Operations Research, Management Science
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Setup of Sensitivity Analysis -- Deterministic Methods -- Tornado Diagrams -- One-way Sensitivity Analysis -- General Relationship Between One-way Sensitivity Functions and Tornado Diagrams -- Do One-way Sensitivity Functions Remedy the Limitations of Tornado Diagrams? -- Differentiation-Based Methods -- An Application: Classical Optimization -- From Infinitesimal to Finite Changes: Generalized Tornado Diagrams -- Estimation and a Computational Shortcut -- Multilinear Functions: Taylor vs Functional ANOVA Expansions -- What to Use and When -- Value of Information -- Local Sensitivity Analysis with Constraints -- Probabilistic Sensitivity Methods -- Uncertainty Analysis -- Global Sensitivity Analysis -- Variance-Based Methods -- Managerial Insights -- The -Importance Measure -- Propoerties -- An Example -- Managerial Interpretation -- CDF-Based Sensitivity Measures -- Transformation Invariant Sensitivity Measures -- Global Sensitivity Analysis with Value of Information -- Exercising in Global Sensitivity Analysis: Test Cases -- Additional Results on the Analytical Properties of High Dimensional Model Representations -- Managerial Insights -- Applications -- Local Sensitivity Analysis in Capital Budgeting. .

This book is an expository introduction to the methodology of sensitivity analysis of model output. It is primarily intended for investigators, students and researchers that are familiar with mathematical models but are less familiar with the techniques for performing their sensitivity analysis. A variety of sensitivity methods have been developed over the years. This monograph helps the analyst in her/his first exploration of this world. The main goal is to foster the recognition of the crucial role of sensitivity analysis methods as the techniques that allow us to gain insights from quantitative models. Also, exercising rigor in performing sensitivity analysis becomes increasingly relevant both to decision makers and modelers. The book helps the analyst in structuring her/his sensitivity analysis quest properly, so as to obtain the correct answer to the corresponding managerial question. The first part of the book covers Deterministic Methods, including Tornado Diagrams; One-Way Sensitivity Analysis; Differentiation-Based Methods and Local Sensitivity Analysis with Constraints. The second part looks at Probabilistic Methods, including Regression-Based methods, Variance-Based Methods, and Distribution-Based methods. The final section looks at Applications, including capital budgeting, sensitivity analysis in climate change modelling and in the risk assessment of a lunar space mission.
