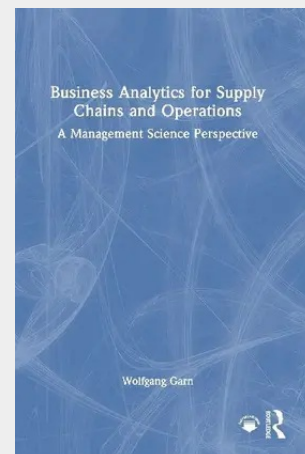


Business Analytics for Supply Chains and Operations

A Management Science Perspective

All businesses face continuous pressure to improve efficiency, reduce costs, and enhance profitability. By adopting an analytical approach, managers and business owners can identify opportunities and solutions that may not be immediately apparent. This book demonstrates how such an approach can be applied systematically to address complex operational challenges. Business Analytics for Supply Chains and Operations introduces a range of key topics that are grouped into three areas: modelling, optimisation, and probability. The optimisation component includes methods such as linear and integer programming and network flows, which are used to address logistics problems (e.g. transportation) in supply chains and production strategies in operations. The probabilistic component covers queueing systems and inventory models, providing tools to analyse uncertainty in operational settings. The book aims to enable readers to increase the efficiency and productivity of business operations. This requires analysts to observe and define challenges concisely, precisely, and logically. Familiarity with both classical and state-of-the-art operational research techniques and tools is essential for approaching such challenges effectively. These tools allow analysts to devise solutions, algorithms, and methods that provide a competitive advantage. Finally, results must be communicated clearly to support management decision-making. This book guides the reader through this process using numerous examples and well-worked solutions. The book is designed for postgraduate and advanced undergraduate students on business degrees, as well as for practising managers seeking analytical tools for decision-making. It emphasises hands-on learning with three main computational tools: Excel (the primary tool, introduced in depth), the MathProg modelling language for optimisation, and SimPy (with Python and a brief introduction to Simio) for simulation experiments. Online support materials include PowerPoint slides, a test bank, computer lab sheets with solutions, and links to video tutorials.

Business Analytics for Supply Chains and Operations provides a concise and practical guide to solving management science problems analytically, with a special focus on supply chain challenges. It equips readers with essential tools and techniques to enhance business efficiency and decision-making.



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