

New Concepts And Trends Of Hybrid Multiple Criteria Decision Making



Decision making is an essential aspect of every individual's life. Whether it's choosing what to have for breakfast or making complex business decisions, the process of weighing options and selecting the best course of action is crucial.

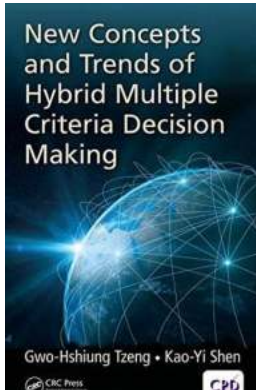
In recent years, a new approach to decision making has gained significant attention - Hybrid Multiple Criteria Decision Making (MCDM). This innovative concept combines different decision-making methods and techniques to provide more effective and accurate results.

New Concepts and Trends of Hybrid Multiple Criteria Decision Making

by Ashbee A. Bakht (1st Edition, Kindle Edition)

★★★★★ 5 out of 5

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The Emergence of Hybrid MCDM

Traditional decision-making methods often involve using a single criterion or technique to reach a . However, in many real-life situations, multiple factors and criteria come into play, making the decision-making process more complex.

Hybrid MCDM acknowledges the multifaceted nature of decision making by combining various methods such as Analytical Hierarchy Process (AHP), Fuzzy Logic, and Genetic Algorithms. By integrating these approaches, hybrid MCDM can address uncertainties and handle diverse decision scenarios more effectively.

Advantages of Hybrid MCDM

Hybrid MCDM offers several advantages over traditional decision-making methods:

1. **Improved Accuracy:** By considering multiple criteria and their interdependencies, hybrid MCDM provides more accurate and reliable results. It helps in minimizing the impact of biases that might arise from using a single criterion.

2. **Handling Uncertainties:** Real-life decision-making scenarios often involve uncertainties and incomplete information. Hybrid MCDM techniques incorporate tools like Fuzzy Logic, which can accommodate vagueness and subjective judgments, allowing decision-makers to handle uncertainties more effectively.
3. **Integration of Diverse Perspectives:** Hybrid MCDM facilitates the integration of diverse perspectives and stakeholder requirements into the decision-making process. By considering multiple viewpoints, it helps in reaching decisions that align with the overall goals and objectives of the organization.
4. **Enhanced Problem Solving:** This approach allows decision-makers to tackle complex problems that cannot be easily solved by traditional methods. The integration of multiple techniques and tools equips decision-makers to analyze problems comprehensively and devise appropriate solutions.
5. **Adaptability:** Hybrid MCDM can be adapted to various decision problems, making it a flexible approach that can be customized based on specific requirements.

Applications and Trends

The adoption of hybrid MCDM has been witnessed across various industries and domains:

1. Business and Finance:

Companies extensively use hybrid MCDM to make strategic decisions, such as new market entry, product portfolio optimization, and supplier selection. The integration of different decision-making models helps in considering various financial and non-financial factors while maximizing profitability.

2. Healthcare:

Medical professionals utilize hybrid MCDM to make critical decisions related to patient diagnosis, treatment planning, and resource allocation. By evaluating multiple criteria such as patient preferences, health outcomes, and cost-effectiveness, hybrid MCDM enables healthcare providers to optimize care delivery.

3. Sustainable Development:

Hybrid MCDM plays a significant role in promoting sustainable development practices. It assists policymakers in evaluating alternative solutions that address environmental, social, and economic aspects simultaneously. Decision makers can analyze the impacts of various alternatives on sustainability goals before implementing them.

As the field of decision making continues to evolve, several trends are shaping the future of hybrid MCDM:

1. Integration of Artificial Intelligence:

The incorporation of artificial intelligence techniques, such as machine learning and neural networks, is expanding the capabilities of hybrid MCDM. AI enables the automation of decision-making processes and the handling of large volumes of data, leading to more sophisticated and efficient decision-making frameworks.

2. Decision Support Systems:

Developments in decision support systems are enabling the integration of hybrid MCDM techniques into software applications. These systems assist decision-makers by providing a structured approach and real-time analysis of alternatives, making the decision process more streamlined and informed.

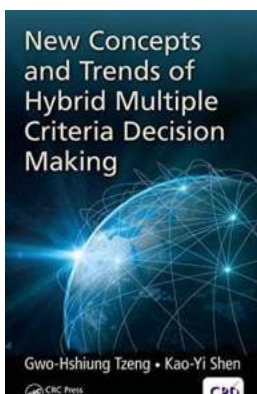
3. Multi-Objective Decision Making:

Hybrid MCDM is evolving to address decision problems involving multiple conflicting objectives. This trend ensures that decision-makers can balance various criteria while making decisions, contributing to more comprehensive and well-informed choices.

Hybrid MCDM represents an exciting and promising development in the field of decision making. By combining different methods and techniques, it overcomes the limitations of traditional approaches, providing decision-makers with better accuracy, adaptability, and problem-solving capabilities.

As organizations face increasingly complex decision scenarios, adopting hybrid MCDM offers a strategic advantage that can drive informed decisions and improved outcomes.

As the field continues to evolve, incorporating trends like AI integration and decision support systems will further enhance the capabilities of hybrid MCDM, paving the way for more sophisticated and efficient decision-making processes.



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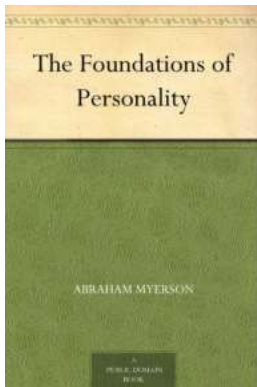
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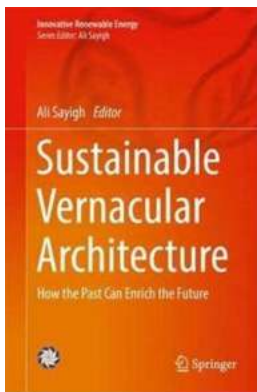


When people or computers need to make a decision, typically multiple conflicting criteria need to be evaluated; for example, when we buy a car, we need to consider safety, cost and comfort. Multiple criteria decision making (MCDM) has been researched for decades. Now as the rising trend of big-data analytics in supporting decision making, MCDM can be more powerful when combined with state-of-the-art analytics and machine learning. In this book, the authors introduce a new framework of MCDM, which can lead to more accurate decision making. Several real-world cases will be included to illustrate the new hybrid approaches.



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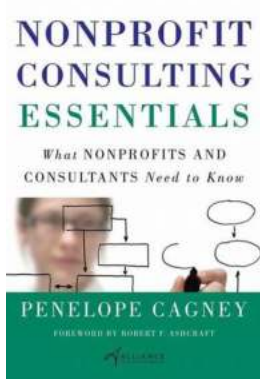
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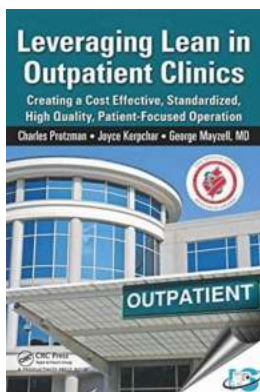
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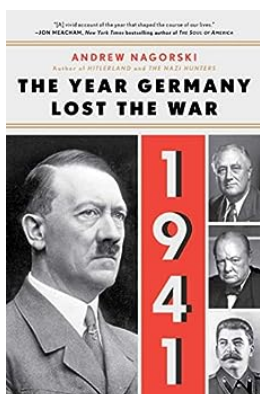
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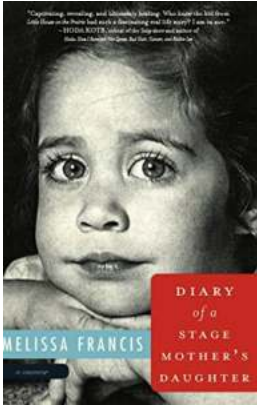
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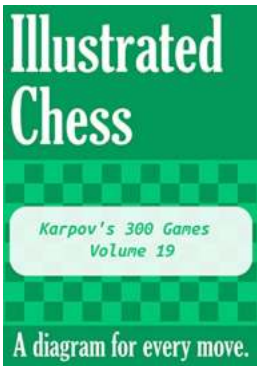
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