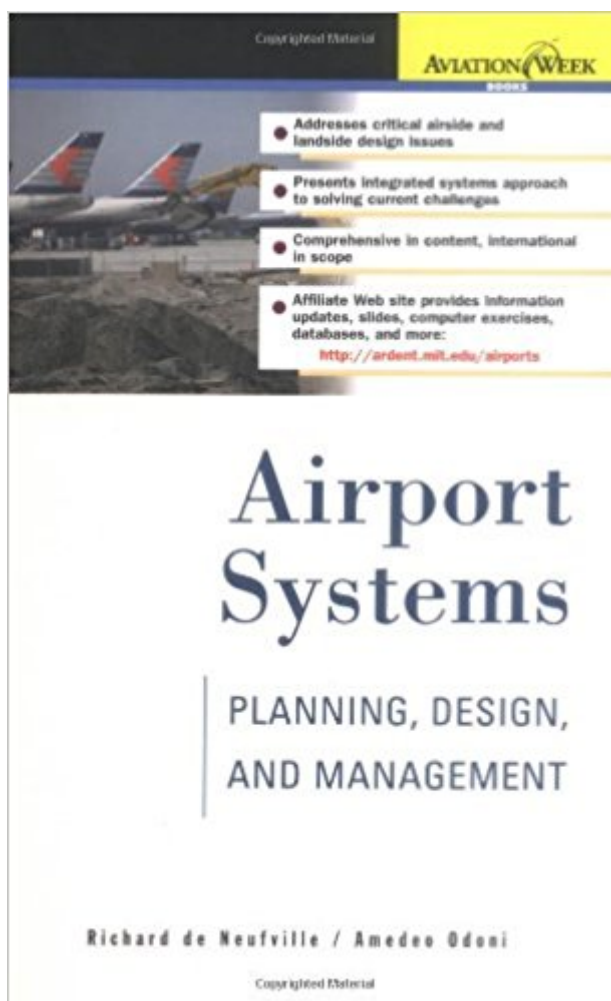


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# Airport Systems: Planning, Design, And Management



## Synopsis

\* The new standard on airport systems planning, design, and management \* Provides solutions to the most pressing airport concerns: expansion, traffic, environment, additions, etc. \* Full coverage of computer-based tools and methodology \* Additional reports and updates available via authors' website

## Book Information

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## Customer Reviews

Review by Ashraf Jan Professors de Neufville and Odani use real world examples to convincingly show the context for airport planning and design is changing fundamentally. No longer limited to technical aspects in the 21st Century, airport planners and designers should cultivate new and critical thinking on such issues as profitability, revenues, and user services. The authors have taught airport system planning both at MIT and to airport professionals for a quarter century. Both have served as consultants to airports and civil aviation organizations, worldwide. From this extensive experience, they provide excellent guidance to a wide audience. FAA Advisory Circulars and ICAO Design Manuals contain general airport planning and design standards. The thrust of the authors' approach is that the new context for airport system planning is commercial, no longer limited to narrow technical aspects. Influences such as airline deregulation, airport and airline privatization, a global airport industry, and advanced technology (electronic commerce in particular)

require this new approach. The framework more widely concentrates on costs and revenues, stochastic traffic and risks, and operations and management. The authors focus on large and medium size commercial airports. They write in simple language, devoid of intimidating technical jargons. Airports, worldwide, are used as examples and case studies to clarify the analysis. The authors served as consultants at many of the airports used as examples. For those interested in forecasting and simulation models and traffic flows and queuing, there is a separate "reference material." To consultant planners in airport planning and design firms and to those in public aviation organizations, the book provides a wealth of knowledge on all aspects of airport planning, design, and management. It encourages cultivating a new way of thinking about the issues, to avoid costly and embarrassing mistakes. The book gives valuable guidance to city and regional planners for making informed, rational decisions regarding fiscal and environmental implications of airport development projects in their communities. The System Planning section presents an insightful discussion of airport master planning, multi airport system, and strategic planning processes. Planners have been part of these programs, funded by the FAA, since the early 1970s. The section points out the reactionary and inflexible features of master plans with a static vision of the future. It cautions planners and managers that strategic planning as practiced in business has also fallen out of favor. Planners and managers will find the lively discussion on shortcomings of forecasts, a valuable eye-opener. It documents that "forecasts are always wrong and unreliable"; therefore, plans based on wrong forecasts also will be wrong. The economically inefficient and premature over development of Paris/de Gaulle, London/Stansted, New York/Newark, and Washington/Dulles are cited as examples. Because planners must deal with forecasting in all spheres of their activities, they will find this discourse insightful. The authors recommend "dynamic strategic planning" as an alternative. It represents a new vision for airport planning in the current environment where privatized airlines compete in a deregulated environment, and privatized airports respond proactively to perceived opportunities and threats. The basic approach is that airport operators must dynamically adjust their planning programs over time to accommodate a variety of future scenarios. Examples of airlines' decisions to shift their bases in the deregulated environment illustrate the implications for infrastructure planning and economic effects on airport operators. The chapter on Airfield Design points out the common mistakes, including: failure to provide flexibility, overbuilding in early stages of airport operations, adopting a non-integrating approach among the various airport elements, and insufficient appreciation for economic implications of design choices. Through dynamic planning, costly mistakes could be avoided. To address the increased complexity involved, guidance is provided for the appropriate use of computer-based tools, such as decision analysis

and simulation models. Planners will also find the chapter on Environmental Impacts of interest. It covers six (aircraft noise, land use, air quality, water quality, traffic, and wildlife) out of twenty environmental categories that must be considered according to the FAA's Airport Environmental Handbook, Order 5050.4A. These categories are among the most significant, and are well covered. The section on noise particularly provides excellent, simply presented information on all aspects of noise analysis and mitigation. This easily understandable treatment of the subject is not commonly available. While the significance of public participation is outlined, the elements and significance of environmental impact study procedural requirements are not addressed. This was perhaps intended. An outline of the requirements with reference to the National Environmental Policy Act (NEPA 1969) would have rounded off treatment of this subject. For airport operators and airlines, chapters on organization and financing, user charges, and cash flow analysis provide valuable information. The authors present incisive analysis of interactions between traffic operations over time, airline schedules, and configuration and design of airfield facilities. Effects on capacity and delay are analyzed, followed by recommendations for demand management and facility utilization. The concept of capacity as a function of level of service is well articulated (de Neufville argued almost three decades ago in *Airport Systems Planning* (MIT Press, Cambridge, MA, 1976), that airport capacity is a function of level of service and should not be viewed like the fixed capacity of a bottle). On the landside, there is a thoughtful analysis of the design and operation of passenger buildings. (The authors do not call it a terminal building because many airports, such as Chicago's O'Hare, transfer a large number of passengers to other destinations and do not terminate travel.) Practical discussion covers the interests of passengers, service providers, retail operators, and government. The concepts of shared facilities and alternative gate operations, and their implications on design and investment in new facilities are incisively analyzed. The section on Ground Access and Distribution provides a clear perspective on the nature of demand and the role and effectiveness of alternative modes of travel. The book critically examines the effectiveness of people movers and mechanical baggage distribution systems, cautioning the reader to avoid costly mistakes such as that at Denver International Airport. The book covers all aspects of airport system planning, design, and management in a comprehensive and innovative manner not available elsewhere. It is a must reading for the practitioners and academics. (Journal of the American Planning Association 2004-10-11)

**A DEFINITIVE RESOURCE ON THE PLANNING, DESIGN, AND MANAGEMENT OF AIRPORTS**  
The de Neufville/Odoni airports text is the most comprehensive of its kind. The book will serve as a

valuable companion to students of aviation and airport management, thanks to an effective mix of conceptual discussion, real-world examples, and graphic illustrations. Students will appreciate the book as a one-stop shop for airport issues, introducing readers to a wide variety of commercial and policy topics facing airport operators, tenants, and communities. -- Carol Hallett, President and CEO, Air Transport Association [Airport Systems] will become the definitive text on airport design for the first part of the 21st century. -- Prof. Robert Caves, University of Loughborough, England I consider Dr. Odoni and Dr. de Neufville to be among the foremost thinkers in the airport planning and systems analysis field. ... I particularly admire their ability to comprehend the implications of complex airport issues, to develop workable solutions, and to explain these solutions in understandable terms to practitioners and politicians. -- Dr. Lloyd McCoomb, Vice-President, Planning and Development, Greater Toronto Airport Authority Two of the most influential professors of airport planning have drawn their vast experience to produce the authoritative text on the complex topic of airport systems. Their lively style and valuable insights make this essential reading for those who would understand and guide the future development of air transportation. The content spans a wide range from the fundamental principles of transportation systems to the details of airport design. Whether your interest is in public policy, planning, design, or management, this book is a critical and up-to-date reference for your activities. -- Larry Kiernan, Senior Airport Planner, Retired, U.S. Federal Aviation Administration

Bought these for the library at the Georgian Military Academy located in GE.

It is exactly what I need ... Perfect choice for all information related to the airports business

From what I read it explains clearly the information sought after. It is a good reference book. Keep up the standard and quality.

I ordered this book for my Airport Management class. The book came quickly. It was new as advertised. I have no complaints. I would recommend this book.

I used this book to study and it is easy to understand and the author wrote it very clear. I love this book

This is well written, easy to read, and all the airport design and management constraints are taken

into account. For students and airport professionals.

When two airport experts at MIT get together to produce a textbook, expectations naturally run high. Professors Odoni and de Neufville are no strangers to the team approach, as they co-teach that university's leading airport course. The resulting book reflects their classroom approach: It is comprehensive, methodological, and takes a scientific approach to airport planning. Like their course, the book is also superbly done. In the process, as often happens when science rules over instinct, many myths are shattered and common errors explained. The only drawback is that to fully enjoy the book, a solid mathematical foundation is required. For those who are math averse, however, there is still plenty to learn. The authors have taken on many challenges in the way the textbook is structured, and successfully so. The textbook is modular, so that chapters are organized into logically separated topics that can serve as stand-alone references. Occasionally, this leads to repetition, but it greatly enhances the book's value as a reference. The authors very nicely combine U.S. and international content. The text spells out when U.S. and international standards are the same and when they differ. It also attempts to explain many of the differences. One of the core areas of expertise presented in the book is capacity and delay. This is broken down into the topics of capacity, delay, demand management (both administrative and economic), and air traffic control (Chapters 10 through 13). This is supplemented by additional reference material, for example in the areas of queuing theory and on how to define the design peak hour for passenger terminal planning. All in all, roughly a quarter of the book focuses on capacity and delay. The book has a few limitations: Many of the colorful anecdotes lack sources, which is unfortunate for the reader who wants to delve into the original material to learn more. This is understandable from the point of view that many of these anecdotes describe costly mistakes carried out by short sighted airport designers. Another, albeit minor, limitation is that many of the examples are taken from Logan International Airport in Boston. This is to be expected based on the authors' location. There are however, many other examples, from all continents. Finally, there are a few areas where the reader may crave more information, notably wildlife management, control of obstructions, and airport noise access restrictions in the post-Airport Noise and Capacity Act of 1990 environment. None of these limitations seriously detracted from my enjoyment of the book. Where this book really excels is in its ability to break down the most difficult challenges facing airport planners into clearly reasoned analytical methods. This should help decision makers avoid expensive errors and provide a rationale for decisions that are otherwise driven by either instinct or politics. It is obvious that this will become a standard reference for airport planners, designers, and managers alike. Even experts

with many years of experience in the field will learn something new and have their preconceptions challenged. New students who are just entering the field are fortunate to have this text as their guide. Through this book, the authors have considerably broadened their audience from their MIT classroom, and carry on a tradition of sharing superb insights into the problems of airport planning and design.[Disclaimer: I am a former student of Professors Odoni and de Neufville, and currently involved in a joint research project with the former.]

Professors de Neufville and Odoni use real world examples to show the changing context of airport planning and design. No longer limited to technical aspects, airport planners and designers must cultivate new and critical thinking on such issues as profitability, revenues, and users services. Influences such as airline deregulation, airport and airline privatization, a global airport industry, and advance technology require this new approach. Based on their teaching at MIT and consulting experience with airports and civil aviation organizations worldwide they provide knowledgeable guidance to a wide audience. To airport consultants and officials in aviation organization the book provides a wealth of knowledge on all aspects of airport planning, design, and management. It cautions that typical master plans are too static and point out the shortcomings of forecasts, supported by examples of economically inefficient and premature over developments. To avoid costly investment mistakes they recommend "dynamic strategic planning" in the deregulated environment, where privatized airports and airlines compete and shift their bases. To city and regional planners it provides valuable guidance for making informed decisions regarding the fiscal and environmental implications of airport development projects in their communities. For airport operators and airlines, chapters on organization and financing, user charges, and cash flow analysis provide insightful guidance. The authors show how to analyze interactions among traffic operations, airline schedules, and configuration and design of airfield and passenger buildings. The concepts of shared facilities and alternate gate operations are also analyzed. They address the effectiveness of alternate modes of ground access and distribution systems and caution against the costly and ineffective people movers and mechanical baggage distributing systems, such as the one at Denver International Airport. The modular structure of the book permits different users to select and organize chapters according to their interests. Ashraf Jan, AICP, is Special Assistant to Assoc. Administrator Airports, Federal Aviation Administration. He also served as Airports Advisor to Civil Aviation Authority, Spain, 1990-99. The review presents his personal views and does not represent policy or views of the FAA.

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