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Nota di contenuto	The Advanced Materials Revolution; Contents; Preface; Acknowledgments; PART I ADVANCED MATERIALS, PAST AND PRESENT; References; 1. The Coming of the Advanced-Materials Revolution; Continuity and New Directions: 1980s and 1990s; The New Materials and the Rise of the "Technological" Society; References; PART II OPPORTUNITIES AND RISKS; 2. A Great Potential-Markets and Society; The Advanced Material Families: Characteristics, Technology, and Applications; Bioengineered Materials; Advanced Metals: Advanced Stainless Steel and "Superalloys"; Advanced Ceramics and Superconductors Synthetic Engineering (Nonconduction) PolymersOrganic Electronic Materials (Conduction Polymers); Advanced (Nonthin) Coatings; Nanopowders and Nanocomposites; Nanocarbon Materials; Nanofibers; Thin Films; Advanced Composites; Global Markets: The Question of

Convergence; References; 3. The Great Divide: Advanced Materials, Productivity, and Economic Growth in the United States and Europe; Technology and Economic Performance. I-IT, Energy and Biomedical; Technology and Economic Performance. II-The Role of Advanced Materials

Localization, Globalization, and the Competitiveness Factor: European Union versus United StatesReferences; 4. Facing Reality: The Risk Factor in Advanced-Materials Technology; The Risks of Innovation; Technical Risk: Can This Be Done?; The Financial Capital Dilemma: Can This Be Paid For?; The Human Capital Dilemma: Can This Be Staffed?; The "Selection" Dilemma: Can We Pick the Winner?; The Market Dilemma: Can We Sell This?; The Management Dilemma: Can Our Team Be Effective?; Public Policy and Perception Dilemmas: Will Government Action Derail Our Strategy?; References

PART III CREATION: RESEARCH AND DEVELOPMENT5. Research and Development I: The American Context; Opportunities Taken and Opportunities Missed: Case Studies; Advanced Polymers; Organic Polymer Electronics (OPES); Nanocarbon Materials: Metal Fullereness and Nanotubes; Nanocrystals and Quantum Dots; The United States, R&D, and Advanced Materials; What Type of R&D?; Where Is R&D Located? The Decentralization of Innovation; What Are the Fruits of R&D? Patents; References; 6. Research and Development II: The European Context; The European Dilemma in R&D I: Funding Problems The European Dilemma in R&D II: Structural ProblemsStructural Problems I: The Questions of Patent Law and Resource Allocation; Structural Problems II: The Universities, Science, and Innovation: The Question of Entrepreneurship; Structural Problems III: Resource Overextension: The Question of Eastern Europe; Structural Problems IV: The Coordination Question; The European Dilemma in R&D III: The "Cultural" Problem; Cultural Bias and the Science versus Technology Issue; Cultural Bias, Public Perception, and Fear of Technology Issue; Discussion; References

PART IV A WIDER CONTEXT: THE SEAMLESS WEB

Sommario/riassunto

Comprehensive investigation into the emerging advanced materials industry, addressing the ways in which science, technology, business, and markets are converging to produce one of the most dynamic industries of recent yearsExamines the major groups of advanced materials and discusses the range of markets and industries to which these materials are, or are likely to be, appliedOrganised thematically, with each chapter discussing a particular phase of an advanced material product's life cycleAlso includes in-depth interviews and internal documentationEssential reading for
