

ECONOMIC AND MULTIATTRIBUTE EVALUATION OF ADVANCED MANUFACTURING SYSTEMS



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Economic And Multi Attribute Evaluation Of Advanced Manufacturing

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Economic Evaluation of Advance Technologies Jerome P. Lavelle, Hampton R Liggett, Hamid R. Parsaei, 2001-12-14

This text illuminates the contemporary issues and technologies related to the economic evaluation and justification of advanced technologies Included are modern tools as well as application based cases that demonstrate the use of these tools Students researchers and decision makers will benefit from this useful resource

Economic and Financial Justification of Advanced Manufacturing Technologies Hamid R. Parsaei, W.G. Sullivan, T.R. Hanley, 2013-10-22 Competence in

investment analysis is now a basic requirement for most practicing managers engineers and financial analysts in order to avoid possible serious mistakes arising from flawed or inadequate knowledge of the discipline Furthermore individuals who make decisions based on technical economics stake their professional futures in many cases on the accuracy of such evaluations The aim of this volume is to provide a balanced view of the essential components of economic and financial analysis including 1 Strategic and design issues 2 Principles of cost management systems and activity based costing and 3 Tools for developing the financial measures of investment worth with advanced topics and case studies in these three areas This volume provides a refreshing insight into the various methods that engineers managers and financial analysts may need to consider to find good alternatives for the investment of scarce resources Not only are new ventures presented but also improvements within existing facilities that include process modification product design equipment replacement and plant expansion contraction

Economics of Advanced Manufacturing Systems Hamid R. Parsaei, A. Mital, 2012-12-06 The 1980s have witnessed a tremendous growth in the field of computer integrated manufacturing systems The other major areas of development have been computer aided design computer aided manufacturing industrial robotics automated assembly cellular and modular material handling computer networking and office automation to name just a few These new technologies are generally capital intensive and do not conform to traditional cost structures The net result is a tremendous change in the way costs should be estimated and economic analyses performed The majority of existing engineering economy texts still profess application of traditional analysis methods But as was mentioned above it is clear that the basic trend in manufacturing industries is itself changing So it is quite obvious that the practice of traditional economic analysis methods should change too This book is an attempt to address the various issues associated with non traditional methods for evaluation of advanced computer integrated technologies This volume consists of twenty refereed articles which are grouped into five parts Part one Economic Justification Methods consists of six articles In the first paper Soni et al present a new classification for economic justification methods for advanced automated manufacturing systems In the second Henghold and

LeClair look at strengths and weaknesses of expert systems in general and more specifically an application aimed at investment justification in advanced technology The third paper by Carrasco and Lee proposes an enhanced economic methodology to improve the needs analysis conceptual design and detailed design activities associated with technology modernization

Engineering for Business Colin O. Benjamin, 2009-05-16 Engineering for Business features teaching materials and case studies developed for senior undergraduate courses in engineering and business and graduate level classes in Engineering Management Industrial Engineering and Management and Technology Management This work surveys the more robust quantitative tools and techniques used to facilitate decision making in business and uses case studies to illustrate their application Where appropriate the readers are provided with frameworks to enable application of the techniques covered and are directed to commercially available software developed to facilitate the deployment of these tools and techniques Traditional industrial engineering and engineering management techniques related to Engineering Economy Multi Criteria Decision making Project Management Management Science and Facilities Planning are covered These are complemented by a review of more topical areas such as Applications Software for Business Technology Commercialization and Supply Chain Management In all areas the emphasis is on integrating theory and practice through the use of case studies based on projects conducted in a wide range of industry settings Engineering for Business provides a robust framework for the explicit integration of engineering tools and techniques into a business curriculum The case studies are rich in data and provide great opportunities for students to apply the techniques covered and to propose innovative solutions to open ended project assignments

Concurrent Engineering Andrew Kusiak, 1993-01-12 Presents a top down approach to the design development testing and recyclability of products components and systems across a wide range of industries Starting with the desired result and working back through the details it shows how to produce goods taking into account the challenges of actual manufacture what the reliability requirements should be quality control associated costs customer needs and more Additional features include case studies and team negotiating Also well illustrated with figures photographs charts and tables and includes an extensive bibliography

The Selection Process for Capital Projects Hans J. Lang, Donald N. Merino, 1993-09-16 Reviews basic principles and presents techniques for evaluating and making decisions about investments and the acquisition of capital projects in industry and the private sector Provides management and control techniques for construction of facilities or installation and operation of machinery and equipment Covers sensitivity analysis and methods for ranking projects Discusses the limitations of various methods Explains how to carry out economic studies for the proper allocation of capital spending

Manufacturing Decision Support Systems Hamid R. Parsaei, Thomas R. Hanley, S.S. Kolli, 2012-12-06 During the last two decades a tremendous growth in the popularity and applications of computers in manufacturing has occurred Computer aided design computer aided manufacturing flexible manufacturing systems group technology and many others are considered by many manufacturing executives as the most promising

technologies and philosophies that if successfully implemented can reduce costs and enable the US manufacturing companies to become more competitive in the global market In the computer integrated manufacturing environment the decision processes are often more involved The decision makers are frequently required to have access to a vast amount of data to support and analyze their complex decision problems at strategic and tactical levels Decision support systems are often referred to as computer based information technologies that allow the decision makers to interactively communicate and solve the decision problems Manufacturing Decision Support Systems is intended to report the latest developments and address the central issues in this area This volume consists of 14 refereed chapters written by leading researchers from academia and industry

Planning, Design, and Analysis of Cellular Manufacturing Systems A.K. Kamrani,H.R. Parsaei,D.H. Liles,1995-04-11 Leading researchers in the field of cellular manufacturing systems from academia and industry have contributed to this volume The book aims to report the latest developments and address the central issues in the design and implementation of cellular manufacturing systems Cellular Manufacturing CM is one of the major concepts used in the design of flexible manufacturing systems CM also known as group production or family programming can be described as a manufacturing technique that produces families of parts within a single line or cell of machines The first part of the book describes various techniques for design and modeling of cellular manufacturing systems The second part is concerned with performance measure and analysis followed by a section which presents the applications of artificial intelligence and computer tools in cellular manufacturing systems

Evolutionary Multi-Criterion Optimization António Gaspar-Cunha,Carlos Henggeler Antunes,Carlos Coello Coello,2015-03-17 This book constitutes the refereed proceedings of the 8th International Conference on Evolutionary Multi Criterion Optimization EMO 2015 held in Guimar es Portugal in March April 2015 The 68 revised full papers presented together with 4 plenary talks were carefully reviewed and selected from 90 submissions The EMO 2015 aims to continue these type of developments being the papers presented focused in theoretical aspects algorithms development many objectives optimization robustness and optimization under uncertainty performance indicators multiple criteria decision making and real world applications

Information Technology Evaluation Methods and Management Wim Van Grembergen,2001-01-01 The evaluation of IT and its business value are the subject of many academic and business discussions Investments in IT are growing extensively and business managers worry about the fact that the benefits might not be as high as expected This phenomenon is often called the IT investment paradox or the IT Black Hole large sums are invested in IT that seem to be swallowed by a large black hole without rendering many returns How to measure the benefits of IT is the concern of this book titled Information Technology Evaluation Methods and Management The different IT evaluation approaches and methods are discussed and illustrated with cases traditional financial evaluations such as the return on investment information economics and the recently introduced IT Balanced Scorecard The latter approach is proposed as an ideal mechanism to support the IT business alignment process and its

related IT governance process Among some of the topics included in this book are software measurement ERP project evaluation strategic electronic commerce evaluation **Technology Assessment** Tugrul U. Daim, 2011 Understanding the technology dynamics is a required capability in today's technology driven industries This volume focuses on three areas technology assessment technology forecasting and technology diffusion It shows an introduction to different types of assessment methods and applications from different sectors including energy healthcare and communications technology forecasting and foresight and a review of conventional and emerging methods and the diffusion of technologies by exploring adoption of products and services from different sectors Back cover Project Management in Manufacturing and High Technology Operations Adedeji Bodunde Badiru, 1996-06-07 Project management is a system originally developed within the construction industry for controlling schedules costs and specifications of large multitask projects In recent years manufacturers have discovered that project management's time tested techniques dovetail neatly with the current thinking on quality control and management in a highly competitive global marketplace The system has been increasingly recognized for its suitability in the manufacturing process and is now applied in virtually every area of production One of the foremost proponents of this trend is Adedeji Badiru an internationally recognized authority on project management whose books have helped thousands of companies adapt the system to their particular needs This completely revised Second Edition of Badiru's breakthrough publication Project Management in Manufacturing and High Technology Operations focuses on the dramatic increase in the use of high tech machinery in industrial operations and seamlessly integrates high tech themes into a general discussion of project management An introductory chapter on manufacturing analysis investigates how the latest concepts and techniques of project management are applied to manufacturing The main body of the book offers a wealth of new material including discussions of learning curve analysis basic models for forecasting and inventory control economic analysis of manufacturing techniques for data analysis and the application of expert systems The chapter on computer applications in project management is completely revised and updated to reflect the enormous strides taken in this area in recent years This book presents an up to date practical approach to project management in manufacturing Written by a pioneer in the application of project management to the manufacturing industries this revised and expanded Second Edition of Project Management in Manufacturing and High Technology Operations reflects the increased use of high tech machinery in industrial operations and the trends of recent years to apply project management methods to every phase of production Complete with numerous illustrations as well as exercises to wrap up each chapter this Second Edition features An emphasis on practical examples including many new case studies and a full chapter on the lessons learned from the space shuttle Challenger disaster Many new project management concepts and techniques that focus on manufacturing but can be applied to any project A new chapter on manufacturing systems analysis that provides the backdrop for the project analysis that takes place throughout the book Expanded discussions of the latest quantitative and managerial approaches including

learning curve analysis basic models for forecasting and inventory control economic analysis of manufacturing techniques for data analysis and the application of expert systems A strong international perspective useful for multinational companies and for academic purposes This book equips engineers and managers with the tools to effectively manage all aspects of a project including quality control schedules and expenses Used as a text in engineering or business courses it offers absorbing supplemental reading for students at the upper undergraduate and graduate levels Professor Badiru has been widely praised for his incisive and highly relevant case studies In this Second Edition the case study approach is expanded so that chapters typically include two real world examples of the project management techniques or issues in question In the final chapter Badiru takes a close and painful look at a high tech disaster the explosion of the space shuttle Challenger He offers rare and instructive insight into the devastating failure of a high tech project still poignant despite the passage of time Communicative throughout this volume provides a solid up to date reference for engineers and managers in manufacturing as well as for consultants and administrators in related fields Professor Badiru s proven reputation for providing interesting lecture material also makes Project Management in Manufacturing and High Technology Operations especially useful as a technology management text in both engineering and business schools Cover Design Illustration David Levy

Handbook of Flexible Manufacturing Systems Nand K. Jha, 2012-12-02 This handbook is a compilation of the current practical knowledge of flexible manufacturing systems FMS FMS allow manufacturing plants of all sizes to reduce their inventory while increasing their ability to meet consumer demands By controlling automatic guided vehicles robots and machine tools with one central computer products can now be produced in a variety of styles and models all at the same time FMS are designed to adapt quickly and economically to changes in requirements and to unpredictable events This guide explains how to effectively employ these useful new systems Includes specifications for software to implement simulation modeling Surveys practical applications in the workplace Presents materials in a step by step workbook style

Rapid Prototyping Ali K. Kamrani, Emad Abouel Nasr, 2006-06-18 Rapid prototyping techniques have been increasingly used by industry to reduce product development cycles A large number of processes have been developed allowing the use of various materials ranging from plastics to metal for the development of prototypes Rapid Prototyping Theory and Practice provides a comprehensive collection of the latest research and technical work in the field with an emphasis on both rapid tooling and rapid manufacturing Drawing upon the collective knowledge of renowned experts in the industrial engineering field Ali Kamrani and Emad Abouel Nasr have assembled a wide ranging treatise on rapid prototyping that includes Up to date documentation on the current scope of research on rapid prototyping tooling and manufacturing Methodologies and technologies to support a customer focussed and mass customization approach to production Detailed analysis and case studies of the application of rapid prototyping rapid tooling and rapid manufacturing in fields such as medical and biomedical manufacturing aerospace industry and automotive industry

General Technical Report PNW-GTR ,2004 **Handbook of Expert Systems**

Applications in Manufacturing Structures and rules A. Mital, S. Anand, 2013-03-08 This book is aimed at both researchers and practitioners and provides a collection of expert systems in manufacturing and production engineering along with their knowledge base and rules We believe that inclusion of the knowledge base and associated rules is essential if practitioners are to derive full benefit from these expert systems This unique book is the result of our belief and the efforts of our distinguished colleagues who subscribe to this philosophy A total of 15 different expert systems are included in this book These expert systems are preceded by an introductory chapter written by Kuo Preface xvii Mital and Anand The expert system rules are included on a floppy disk in ASCII and can be easily accessed These rules and the description of the expert system's structure should assist the user in customizing these systems Overall the expert systems included in this volume cover a fairly wide variety of manufacturing and production engineering topics Solutions Manual John R. Canada, William G. Sullivan, 1989 **The Engineering Handbook** Richard C Dorf, 2018-10-03 First published in 1995 The Engineering Handbook quickly became the definitive engineering reference Although it remains a bestseller the many advances realized in traditional engineering fields along with the emergence and rapid growth of fields such as biomedical engineering computer engineering and nanotechnology mean that the time has come to bring this standard setting reference up to date New in the Second Edition 19 completely new chapters addressing important topics in bioinstrumentation control systems nanotechnology image and signal processing electronics environmental systems structural systems 131 chapters fully revised and updated Expanded lists of engineering associations and societies The Engineering Handbook Second Edition is designed to enlighten experts in areas outside their own specialties to refresh the knowledge of mature practitioners and to educate engineering novices Whether you work in industry government or academia this is simply the best most useful engineering reference you can have in your personal office or institutional library

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