1. Record Nr. UNINA9910960880603321

Titolo Manufacturing systems : foundations of world-class practice / / Joseph

A. Heim and W. Dale Compton, editors

Pubbl/distr/stampa Washington, D.C., : National Academy Press, 1992

ISBN 9786610203116

Edizione [1st ed.]

Descrizione fisica viii, 273 p. : ill

Altri autori (Persone) HeimJoseph A

ComptonW. Dale

Disciplina 658.5

Soggetti Manufacturing industries - Management

Industrial management

Lingua di pubblicazione Inglese

Formato Materiale a stampa

Livello bibliografico Monografia

Note generali Bibliographic Level Mode of Issuance: Monograph

Nota di bibliografia Includes bibliographical references and index.

Nota di contenuto Manufacturing Systems -- Copyright -- Foreword -- Preface --

Contents -- Report of the Committee on Foundations of the

Manufacturing -- Executive Summary -- GOALS AND OBJECTIVES -- THE CUSTOMER -- THE ORGANIZATION -- THE EMPLOYEE -- THE SUPPLIER OR VENDOR -- THE MANAGEMENT TASK -- METRICS -- DESCRIBING AND UNDERSTANDING -- EXPERIMENTATION AND

LEARNING -- TECHNOLOGY -- IMPLEMENTING THE FOUNDATIONS -- 1

Introduction -- 2 Overview -- THE MANUFACTURING SYSTEM --

MANUFACTURING FOUNDATIONS -- THE BENEFITS OF FOUNDATIONS OF MANUFACTURING -- THE AUDIENCE -- 3 Management Practice -- GOALS AND OBJECTIVES -- THE CUSTOMER -- THE ORGANIZATION -- THE EMPLOYEE -- THE SUPPLIER OR VENDOR -- THE MANAGEMENT TASK -- 4 Measuring, Describing, and Predicting System Performance

-- METRICS: QUANTIFYING THE PERFORMANCE OF THE

MANUFACTURING ENTERPRISE -- Taxonomy for Metrics -- Matching

Metrics with Goals and Concerns -- Financial Measurements -- The Application of Metrics as Operational Guidelines -- Other Metrics --MODELS AND LAWS -- Empirical Models -- Modeling and Understanding -- Determining Limits for Improvement -- Identifying Critical Variables -- Strategic Planning and Management -- Basis for Decisions and Predicting Performance -- Simulation -- 5 Organizational Learning and Improving System Performance --FOUNDATIONS RELATED TO LEARNING AND RENEWAL -- The Learning Process -- Formalize Organizational Knowledge with Models --FOUNDATIONS THAT RELATE TO TECHNOLOGY -- Unit Processes and Subsystems -- Subsystem Interfaces -- System Issues -- Enhancing the Scientific Method for Understanding Manufacturing Systems -- 6 Educational and Technological Challenges -- CHALLENGES FOR THE EDUCATION SYSTEM -- THE TECHNOLOGICAL CHALLENGES -- Globally Competitive Manufacturing Practices -- Involvement and Empowerment: The Modern Paradigm for Management Success. WHAT IS EMPLOYEE INVOLVEMENT? -- RELATIONSHIP OF EMPLOYEE INVOLVEMENT AND EMPOWERMENT -- WHY WAS "EMPLOYEE INVOLVEMENT AND EMPOWERMENT" DEEMED SO CRITICAL? --ACCOMPLISHING THE CHANGE -- Phase I-Employee Involvement: Change at the Plant Level (1979-1982) -- Phase II-Participative Management: The Change in Middle Management (1982-1985) --Phase III-Senior Management Change (1985-present) -- CONCLUSIONS -- Implementation Projects: Decisions and Expenditures --Benchmarking -- FINANCIAL METRICS -- PRODUCT PERFORMANCE METRICS -- UNIT OPERATION METRICS -- SYSTEM OPERATIONAL METRICS -- AGGREGATED MEASURES OF PERFORMANCE -- MEASURES OF LONG-TERM COMPETITIVE CAPABILITY -- Technological Capability -- Technical Personnel -- INTERACTIONS -- CONCLUSION --Improving Quality Through the Concept of Learning Curves --ORIENTATION -- THE LEARNING CURVE RELATED TO COSTS -- THE LEARNING CURVE RELATED TO QUALITY -- OBSERVATIONS --CONCLUSION -- ACKNOWLEDGMENT -- Organizing Manufacturing Enterprises for Customer Satisfaction -- CRITERIA RELEVANT TO ORGANIZATIONAL STRUCTURE -- CLASSICAL ADMINISTRATIVE THEORY -- CHOICE OF FUNDAMENTAL METRICS -- TAGUCHI'S PARADIGM --APPLICATION OF THE CRITERIA -- DISCUSSION -- Customer Satisfaction -- WHO REALLY IS THE CUSTOMER? -- WHAT DOES "SATISFACTION" REALLY MEAN? -- WHAT DO YOU WANT OUT OF IT? --THE CRITICAL STEP-THE PRODUCT PLAN -- THE LAST PIECE OF THE PRODUCT PLAN-METRICS -- SANITY CHECKS -- IMPLEMENTATION-THE EASY STEP? -- The Interface Between Manufacturing Executives and Wall Street Visitors- Why Security Analysts Ask Some of the Questions That -- QUESTIONS THAT MIGHT BE ASKED (BUT USUALLY ARE NOT) BY SECURITY ANALYSTS WHEN QUESTIONING A SENIOR V.P. OF MANUFACTURING: -- Taylorism and Professional Education --TAYLORISM -- THE ESSENTIAL ELEMENTS OF TAYLORISM -- WHEN DOES TAYLORISM WORK? -- WHAT SHOULD BE DONE?. Empowerment of Our Professional Students -- Encouragement of Cooperative Student Work Practices -- Participative Management of the Educational Enterprise -- Development of a Supportive Professional Accreditation Process -- SUMMARY -- ACKNOWLEDGMENT -- The Integrated Enterprise -- Time as a Primary System Metric -- TIME AS A DIAGNOSTIC TOOL AND A DRIVER OF QUALITY AND COST -- LESSONS FROM SIMPLE QUEUING MODELS -- APPLYING THE LESSONS LEARNED IN MANUFACTURING -- Communication Barriers to Effective Manufacturing -- Are There "Laws" of Manufacturing? -- TAUTOLOGIES

VERSUS LAWS -- LAWS VERSUS EMPIRICAL MODELS -- OUTLOOK FOR

LAWS OF MANUFACTURING -- ON COMPLEX SYSTEMS AND THEIR MODELING -- The Need for Multiple Views -- Modeling Myopia --Taking Risks in Manufacturing -- RISK AS A CONSEQUENCE OF CHANGE -- EFFECTIVE USE OF PEOPLE -- Total Employee Involvement --Effective Teams -- PLANNING FOR CHANGE -- Strategic Planning --Managing Organizations in Transition -- PROVIDING PROPER TOOLS --Statistics and Problem Solving -- Change Control Methodology --SUMMARY -- Constant Change, Constant Challenge -- NEW MANAGEMENT PARADIGM NEEDED -- MANAGING FROM THE FUTURE --STRATEGIC CONTROL: THE LEARNING ORGANIZATION --ORGANIZATION LEARNING -- SUMMARY -- Manufacturing Capacity Management Through Modeling and Simulation -- MODELS. MODELING, AND SIMULATION -- TOTAL CAPACITY MANAGEMENT: AN OVERVIEW -- FUNCTIONS IN TOTAL CAPACITY MANAGEMENT -- Design Assessment -- Capacity Requirements Planning and Analysis --Scheduling -- Schedule Management -- Status Presentation and Statistics -- Schedule Execution and Dispatching -- TCM ARCHITECTURE -- DISCUSSION -- ACKNOWLEDGMENTS -- The Power of Simple Models in Manufacturing -- WHY WE MODEL -- THE POWER OF SIMPLICITY -- AN EXAMPLE -- CONCLUSIONS -- Improving Manufacturing Competitiveness Through Strategic Analysis. CHARACTERISTICS OF STRATEGIC ANALYSIS AT ALCOA -- USING DATA FOR PROCESS UNDERSTANDING -- DEVELOPMENT OF FORECASTS --SUMMARIZING FORECASTS AND INTERPRETING OPPORTUNITIES --SHARED ENGAGEMENT IN THE ANALYSIS -- ACKNOWLEDGMENTS --Going to the Gemba -- Jazz: A Metaphor for High-Performance Teams -- SOLOING AND SMALL JAZZ GROUPS -- THE LARGER JAZZ ENSEMBLE -- ACKNOWLEDGMENT -- Consolidated Bibliography -- Committee Membership -- COMMITTEE ON FOUNDATIONS OF MANUFACTURING --CONTRIBUTING AUTHORS -- NAE STAFF -- Biographies of Contributing Authors -- Index.

Sommario/riassunto

Some 70 percent of U.S. manufacturing output currently faces direct foreign competition. While American firms understand the individual components of their manufacturing processes, they must begin to work with manufacturing systems to develop world-class capabilities. This new book identifies principles--termed foundations--that have proved effective in improving manufacturing systems. Authored by an expert panel, including manufacturing executives, the book provides recommendations for manufacturers, leading to specific action in three areas: Management philosophy and practice. Methods used to measure and predict the performance of systems. Organizational learning and improving system performance through technology. The volume includes in-depth studies of several key issues in manufacturing, including employee involvement and empowerment, using learning curves to improve quality, measuring performance against that of the competition, focusing on customer satisfaction, and factory modernization. It includes a unique paper on jazz music as a metaphor for participative manufacturing management. Executives, managers, engineers, researchers, faculty, and students will find this book an essential tool for guiding this nation's businesses toward developing more competitive manufacturing systems.