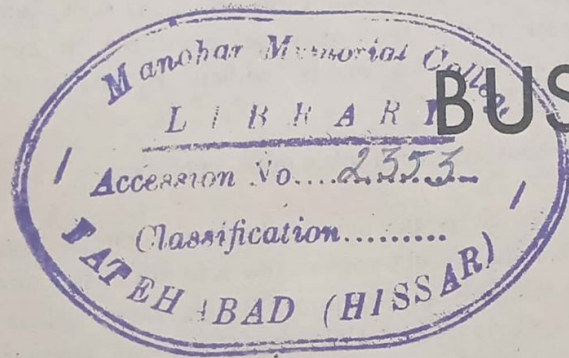


CLAUDE S. GEORGE, JR.
Associate Dean and
Professor of Industrial Management
Graduate School of Business Administration
University of North Carolina at Chapel Hill

MANAGEMENT

FOR



BUSINESS

AND

INDUSTRY

A revised edition of
Management in Industry

PRENTICE-HALL OF INDIA PRIVATE LIMITED
New Delhi, 1972

CONTENTS

PART ONE: MANAGEMENT AS A TOTAL SYSTEM

MANAGEMENT AND THE MANAGER 3

1 What is management Managerial acts The managerial environment Managerial functions *Planning Organizing Directing Controlling* The managerial composite Functions and environment Managerial education A management model The successful manager *Characteristics Leadership The contemporary manager* A manager's responsibilities *Responsibility to stockholders Responsibility to employees Responsibility to customers Responsibility to the public and government* The management profession

THE MANAGERIAL SYSTEM 26

2

The operating firm The operating system Board of directors President Secretary Treasurer Controller Organic functions Accounting Personnel Purchasing Engineering Production control Inspection General organization The organization chart Constructing a chart The economic galaxie

MANAGERIAL DECISION MAKING 40

3

How decisions are made Steps in decision making Awareness of the problem Identifying the problem Analyzing the problem Determine possible alternatives Evaluate the impact of alternatives Choosing a course of action Types of decisions Aids for making decisions Breakeven analysis The breakeven point Breakeven chart Constructing a breakeven chart Using the breakeven chart Restrictions in the use of breakeven analysis Mathematical solution Cut-over point Make or buy decisions Operations research The final decision

ELECTRONIC DATA PROCESSING AND DECISION MAKING 69

4

Electronic data processing Computer systems Computer development Applications of computer systems When to add a computer

PART TWO: ORGANIZING

ORGANIZING THE SYSTEM 87

5

Need for organization Organization defined Types of organization Line organization Functional organization The line and staff organization Distinction between life and staff organization Types of committees Committee limitations and uses Effective operation Developing an organization structure Principles of organization Developing an organization Results of good organization

NUANCES OF THE ORGANIZED SYSTEM 111

6

Leadership Importance of leadership The informal organization Need for change Inefficiencies Inefficiencies in functional organizations Integrating employee's efforts Organization fallacies Reorganization pitfalls Conclusion

PART THREE: PRODUCT ANALYSIS AND DEVELOPMENT

PRODUCT RESEARCH AND DEVELOPMENT 128

7

Development of industrial research Need for research Types of research Who does research Industrial research departments Need for planning in research Market research Motivation research Dynamic research Research for product development Product design Sources of new ideas Planning for new products Controlling costs for research and product development Costs of research and product development programs Need for research Impact on management

PRODUCT DEVELOPMENT PRINCIPLES 147

8

History Standardization Standardization and the consumer Standardization and management Standardization and the worker Product standardization Applying standardization Simplification Simplified practice Considerations in simplifying products Advantages of simplification Specialization Applications Characteristics of specialization Interdependence Simplification and standardization Simplification and standardization precede specialization Impact of simplification, specialization, and standardization

PART FOUR: THE PRODUCTION SYSTEM

FACILITY DESIGN AND LOCATION 165

9

Considerations for plant location Future plans Labor Community attitudes Community facilities Proximity to raw material Proximity to market Transportation Power—fuel Water Taxes and legislation Security

Climate Land Industrial districts Housing and executive choice Locating the plant Economic analysis Facility location planner Outside assistance Planning the building General requirements Types of buildings Types of construction Considerations in building design Flexibility Expandability Employee facilities Fire hazards and plant protection Miscellaneous design details Trends in design Locating the building on the site Management's job

FACILITY LAYOUT AND ENVIRONMENT 189

10

Layout Objectives of good layout When to change a layout Types of layout Process layout Product layout Combinations Fundamental considerations in layout Products Operations sequence Spatial requirements Equipment Maintenance and replacement Balance Minimum movement Flow Waiting and service areas Plant climate Flexibility Developing a new layout Evaluate the layout Major areas Small divisions Presenting the layout Two-dimensional layouts Three-dimensional models Lighting Characteristics of good lighting Sources of light Arrangements Maintenance of lamps Color Noise Noise defined Measuring noise Damage and loss of hearing Objectives in noise abatement Management's job Plant climate space conditioning Summary

AUTOMATION, COMPUTERIZATION, AND MACHINES 219

11

Automation versus mechanization Impact of automation Labor Management Other effects Computerization Computers and management Numerical control General purpose machines Lathe Milling machine Drill press Broaching machine Grinding machine Planer and shaper Punch press

MATERIALS LOGISTICS 239

12

Effects of good materials handling Materials handlings at the work place Principle of unit load Types of materials handling equipment Conveyors Cranes and hoists Vehicles Communications and control Evidences of poor materials handling Materials handling outside the plant Use of operations research in materials handling Innovations in materials handling

MAINTENANCE 268

13

Duties of maintenance Maintenance policy Operating the maintenance department Queuing theory Requirements for effective plant maintenance Written work orders Planning and scheduling Stores control Records Reports and controls Organization Wage incentives for maintenance workers Use of computers PERT techniques

EQUIPMENT PURCHASING AND REPLACEMENT POLICY 286

14

Reasons for replacement Deterioration Obsolescence Inadequacy Working conditions and morale The problem Types of costs Cost saving Interest Depreciation Capital recovery Depreciation exceptions Book value of an old machine Taxes Total-life average Present-worth method The new MAPI formula Post audit Organization for replacement Leasing Types of leases Advantages of leasing Disadvantages Leasing versus purchase Management's job

PART FIVE: THE HUMAN SYSTEM

INTERPERSONAL RELATIONS 317

15

Interpersonal relations defined Employing the "whole man" The individual in industry Industrial groups Individual wants Measuring employee satisfaction Increasing employee satisfaction Communications Personnel management Counseling Committees and meetings Effects of good human relations

MANAGEMENT OF PERSONNEL 332

16

Personnel functions Place of personnel management in the organization Need for personnel policies Major duties of the personnel section Estimate labor requirements Job specifications Determining labor sources and recruiting employees Selecting and placing employees Introduction to the job Training and education Coordinating promotions and transfers Conducting separation procedures Records New horizons for personnel management

UNION-MANAGEMENT RELATIONS 350

17

Union growth *American Federation of Labor Congress of Industrial Organizations* *War and post war periods* *Merger of the Labor Management Relations Act of 1947* *Union organization* *AFL and CIO* *Union membership* *Future collective bargaining* *Coalition bargaining* *Union organization and management's rights* *Management's task*

EMPLOYEE SAFETY AND HEALTH 366

18

Reasons for accident prevention *Accident proneness* *Organization of the Management's responsibility for safety* *Preventing safety function* *Duties of the safety director* *Plant accidents* *Plant inspection* *Job safety analysis* *Placement* *Employee training and education* *Personal protective equipment* *Safeguarding machinery* *Materials handling* *Hand tools* *Maintenance* *Falls* *Layout and designs* *Housekeeping* *Fire protection* *Accident investigation* *Measuring safety* *Practicing safety* *Medical department*

PART SIX: WORK STANDARDS AND WAGES

WORK DESIGN: IMPROVING WORK METHODS 385

19

Methods improvement defined *Frederick W. Taylor and time study* *Motion study and the Gilbreths* *Microchronometer* *Cyclegraph and chronocyclegraph* *Process analysis* *Motion analysis* *Rules of motion economy* *Rules pertaining to the use of the human body* *Rules pertaining to the arrangement of the work place* *Rules pertaining to the design of tools and equipment* *Taylor and the Gilbreths*

WORK SIMPLIFICATION 415

20

No one best way *Multiple activity analysis* *Man-machine analysis* *Operation analysis* *Micromotion analysis* *Therbligs* *Film analysis* *Sino chart* *Application of motion study techniques* *Motion study and fatigue* *Industrial engineering department* *Time study*

WORK MEASUREMENT 436

21

Uses of time study *Equipment used* *Steps in developing a time standard* *Cooperation of foreman* *Selection of operator* *Standard conditions* *Dividing the job into elements* *Timing the job* *Selected time* *Leveling or performance rating* *Normal time* *Allowances* *Standard time* *Production studies* *Setting piece rates* *Standard data* *Predetermined time standards* *Work sampling* *Unions and time study* *Management's use of motion and time study*

WAGE ADMINISTRATION 459

22

Real versus monetary wages *Company wage levels* *Legal requirements* *Job worth* *Job evaluation* *Need for job descriptions and job specifications* *Nonquantitative methods of job valuation* *Quantitative job evaluation* *Pricing the job* *Managerial acceptance* *Individual employee pay* *Merit rating* *Effect of merit rating on pay* *Other pay changes* *A satisfactory wage*

WAGE PAYMENT PLANS 475

23

Time as a basis for pay *Productivity as a basis for pay* *Objectives of wage incentives* *Prerequisites for an incentive installation* *Necessity for carefully established standards* *Incentive pay plans* *Straight piece work* *Straight piece rate with guaranteed base* *Halsey 50-50 plan* *100 percent bonus plan* *Rowan plan* *Measured day work* *Bedaux plan* *Group plans* *Requirements for a successful incentive pay plan* *Organized labor's attitude* *Management's responsibilities*

PART SEVEN: THE CONTROL SYSTEM

SECURING APPROPRIATE MATERIALS 493

24

Purchasing responsibility *Organization* *Interrelationship of purchasing and other activities* *Value analysis* *Purchasing procedure* *Types of purchasing* *Purchasing policy* *Measuring purchasing efficiency*

CONTROLLING QUALITY THROUGH INSPECTION 511

25

Inspecting materials Specifications and standards Inspection department Where inspection takes place Preventive and remedial inspection Types of inspection Costs of inspection When to inspect Computers and automation Ultrasonic inspection Inspection records Inspection devices

CONTROLLING QUALITY THROUGH STATISTICAL METHODS 526

26

Statistical quality control versus inspection Sampling Representative sample Product variation Normal distribution Control limits Control charts Range Constructing the \bar{X} and R chart Attributes versus variables Acceptance sampling Computer applications Effects of statistical quality control

CONTROLLING MATERIALS INVENTORIES 547

27

Inventory control costs Prerequisites for an inventory control system Enclosed storeroom Storekeeper Receipt and issuance of material Adequate records Eliminate obsolete items Organization Inventory control records Purchase requisition Receiving report Balance-of-stores form Materials requisition form Control account Interaction of forms Maintaining a supply of material Quantity standards Standard order Limitations on the use of the economical purchase lot size formula Quantity discounts Computerized control Physical inventory The "ABC" control policy Results of good inventory control

PRODUCTION CONTROL 571

28

Origin of production control Effects of production control Organization of production control Duties of production control Types of manufacturing Production control in intermittent manufacture Receipt of order Loading and scheduling Securing materials Manufacturing orders Dispatching Materials movement Follow-up Estimating Production control in continuous manufacture Paper work Linear programming Index method Use of computers Production control under dynamic conditions

PROJECT CONTROL 601

29

Background Network theory Where to use PERT PERT defined Developing a network Network rules Square diagram PERT with cost Probability and PERT Advantages of PERT and PERT/cost Negative aspects of PERT Conclusions

OVERALL CONTROL 618

30

Budgets Reasons for budgeting Prerequisites for budgeting Types of budgets Budget applications Sales budget Manufacturing budget Materials and purchases budget Direct labor budget Cash budgets Expense budget Analyzing budget variations Responsibility for budgeting Management and the budget