STRATEGIC MANAGEMENT OF RESEARCH AND DEVELOPMENT:
A LITERATURE SEARCH

Compiled by:
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January 15, 1988

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PREFACE

This literature search is an advance product of the Post Conference Sub-Committee of the National Conference on Strategic Management of Research and Development. The conference, to be held in Crystal City, Arlington, Virginia, in June 1988, is sponsored by the AIAA, AIA, IEEE, and EIA in cooperation with DoD and NASA. The members of the Post Conference Sub-Committee (as of this date) are listed on the following page.

The references listed were drawn from government and commercial databases and include citations from periodicals, conference proceedings, government contractor reports, and books. While this is not an exhaustive search, it is believed to contain a major portion of what is available on the subject. It will give the reader an idea of the scope of materials available on strategic planning and management of R&D and is intended to stimulate further interest and dialogue on this area of emerging significance.
NATIONAL CONFERENCE ON STRATEGIC MANAGEMENT OF R&D (STRATRAD)

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CONTENTS

I. HOW TO USE THIS DOCUMENT ........................................ 1-1

II. REPORTS, JOURNAL ARTICLES, AND CONFERENCE PAPERS
    ON STRATEGIC PLANNING OF RESEARCH AND DEVELOPMENT .... 2-1

III. REPORTS, JOURNAL ARTICLES, AND CONFERENCE PAPERS
     ON STRATEGIC MANAGEMENT OF RESEARCH AND DEVELOPMENT . 3-1

IV. BOOKS ON STRATEGIC PLANNING AND MANAGEMENT OF
    RESEARCH AND DEVELOPMENT ........................................ 4-1

V. SOURCES OF LITERATURE ............................................. 5-1
SECTION I

HOW TO USE THIS DOCUMENT
SECTION I

HOW TO USE THIS DOCUMENT

In the course of gathering the references contained here, it was observed that strategic planning and strategic management are frequently cited separately in periodicals and contractor reports. For this reason, references from such sources are listed separately in Sections II and III, respectively. In the case of books, distinction between the two topics is less common; therefore, all book references are grouped together in Section IV. In each section, the citations are listed alphabetically by senior or corporate author. Some citations may appear to be only indirectly related to the section topic; these were included because of their potential usefulness to one exploring the general area of interest.

Each abstract has been reviewed as to its described contents and potential applicability to the topics expected to be addressed at the 1988 National Conference. However, not all of the complete documents have been screened in their entirety by the reviewers, so the reader is advised to make a judgment as to what material may in fact be most useful.

Section V provides the names, addresses, and telephone numbers of organizations from which the listed material may be requested. The documents are not available from members of the Post Conference Sub-Committee or the document compiler.

Comments on this literature search and additional references are welcome and should be referred to Carol K. Sterkin or Leo R. Lunine at the Jet Propulsion Laboratory.

NASA acronyms and abbreviations used in the document are defined as follows:

<table>
<thead>
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<th>Abbreviation</th>
<th>Description</th>
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<td>ABA</td>
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<td>CIO</td>
<td>Country of intellectual origin</td>
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<td>Major subject heading</td>
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<td>Minor subject heading</td>
</tr>
<tr>
<td>SAP</td>
<td>Sales agency and pricing</td>
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<tr>
<td>UTTL</td>
<td>Unclassified title</td>
</tr>
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SECTION II
REPORTS, JOURNAL ARTICLES, AND CONFERENCE PAPERS ON STRATEGIC PLANNING OF RESEARCH AND DEVELOPMENT
The importance of strategic planning for research and development (R&D) should be considered due to limited resources and long development periods. The advantages of R&D planning include high turnover and profit opportunities because the firm first to market innovative products gains a technical lead over its competitors. Being the first to market innovative products also means high costs of research and great risks of failures. Various methods are available for determining an R&D budget. R&D planning must also be integrated in the total organizational plan. The evaluation of research projects can be achieved by conducting: 1. a general investigation which includes a technological forecast, 2. a complete project evaluation, and 3. an allocation decision. Projects can be evaluated using scoring models and indices provided by Olsen and Pacifico. The net present value method is a better method to use in determining the value of research projects. Research people can be motivated by using the concept of parallel research. By considering the number of specific and explicit research strategy possibilities, top management can develop their own R&D strategies and continue to contribute to their firm's competitive strength.
External trends such as the growth of the information society, the increasing economic value of information, the growth of research and development, funding, and advances in automation have dictated the need for information services to have a strong commitment to strategic planning. These trends are discussed and the strategic planning process at the National Technical Information Service (NTIS) is outlined.

A top-down approach is taken to apply multi-objective decision analysis to the strategic budgetary decisions in energy RD&D (research, development and demonstration) planning. A model is developed for the explicit and quantitative treatment of uncertainties and project interrelationships. The model is applied to an example budgetary allocation between two coal liquefaction programs, H-Coal and Synthoil. The example demonstrates the potential appropriateness of decision analysis in energy RD&D strategic planning.
THE ROLE OF INDUSTRIAL MARKETING RESEARCH IN STRATEGIC PLANNING.
CLARK, W.A.
AMERICAN MARKETING ASSOCIATION PROCEEDINGS, SERIES 45, 1980, P. 188-191., PROCEEDINGS.

MARKETING RESEARCH AND STRATEGIC PLANNING ARE DEFINED. MARKET RESEARCH HAS SEVERAL IMPORTANT ROLES TO PLAY IN STRATEGIC PLANNING. STRATEGIC PLANNING IS THE MEANS FOR DETERMINING THE BEST ALLOCATION OF LIMITED RESOURCES AMONG BUSINESSES.

DESCRIPTORS: MARKETING RESEARCH; LONG RANGE PLANNING AND OBJECTIVES; RESOURCE ALLOCATION; PLANNING; GOALS AND OBJECTIVES; 0587; 0230; 0641; 0251; 0251

Linking R&D and Strategic Planning
Collier, Don
Jrnl of Business Strategy v2n2 PP: 72-81 Fall 1981
JRSSN CODE: JST
DOC TYPE: Journal Paper LANGUAGE: English LENGTH: 10 Pages
AVAILABILITY: ABI/INFORM

The key ingredients of sound strategic management include the operational manager's involvement in planning and implementing strategies, good communication, and resource allocation and functional plans made in accordance with the strategies. At Borg-Warner, strategies at the business unit level were controlled by the corporate office, primarily through resource allocation. A 4-point program was implemented to correct this situation by revising technological priorities in the company. The new strategy was based on: 1. emphasizing margin and other operating ratios, 2. allocating resources to the most profitable business units, 3. acquiring technologies upon which to base future growth, and 4. acquiring businesses that could improve Borg-Warner's business mix. When a corporation sets strategies to obtain future goals, a proper allocation of resources is important. A key resource is expenditures for research and development (R & D). Because the payback on R & D investments is not immediate and is sometimes obscured, a system for monitoring R & D results should be developed. Charts.

DESCRIPTORS: Strategic; Planning; Strategic management; Corporate planning; Case studies; Borg Warner-Chicago; Organizational plans; Technology; Development

530443 AD-A030 804/9
Defense R and D Issues: Their Importance in Long-Range Strategic Planning
(Final rept.)
Ford, John J.; Gray, Colin S.; Jacobs, Jerome E.; Lackman, Jr., William F.; Perry, Willard W.
Stanford Research Inst Arlington Va Strategic Studies Center
Corp. Source Codes: 407407
Report No.: SSC-TN-2358-2
Jun 75 241p
See also Rept. no. SSC-TN-2358-3 dated Dec 74, AD-A030 805 and Rept. no. SSC-TN-2358-4 dated Dec 74, AD-A030 761.

2-3
This report reviews the key issues associated with defense technology to provide a basis for the examination of R/D policy and the formulation of program plans. The issue papers examine the concepts of technological superiority, balance, and surprise; discuss technology in negotiations and international cooperation in R/D; and assesses selected R/D aspects of military strategy and planning. (Author)

Descriptors: *National defense; *Military planning; *Military research; *Military strategy; *Research management; *Department of Defense; *National security; Military doctrine; Policies; Methodology; Operations research

Identifiers: *Research and development; NTISDODXA

82N70983 CATEGORY 81 RPT#: CE-BIB-286 81/00/00 11 PAGES UNCLASSIFIED DOCUMENT DCAF F004655

CORP: Central Electricity Generating Board, London (England). CSS: (Technical Information Unit.)
AVAIL NTIS

87N12252# ISSUE 3 PAGE 393 CATEGORY 61 RPT#: AD-A168692 AFWAL-TR-86-4018 CNT#: F33615-83-C-5077 86/01/00 212 PAGES UNCLASSIFIED DOCUMENT

SAP: Avail: NTIS HC A10/MF A01

ABA: Author (GRA)
ABS: The Air Force Wright Aeronautical Laboratories Materials Laboratory is charged with developing a research program for applications of Artificial Intelligence as it relates to manufacturing. As a part of program development, advisory input was sought from experts from industry, academia, and government. A structured methodology was employed which featured a top-down approach leading from concept level articulation, through application area goals and objectives, to project level detail. This report documents the effort in terms of providing methodological background, application area goals and objectives, and results obtained from project generation and assessment.
RESEARCH ON STRATEGIC PLANNING: A SURVEY OF PAST STUDIES AND SUGGESTIONS FOR FUTURE EFFORTS.

HOFER, C.W.


DESCRIPTORS: ACQUISITION; CORPORATIONS: SURVEY; EFFICIENCY DECISION MAKING; COST BENEFIT; FINANCIAL RATIOS; INVESTMENT ANALYSIS; GOALS AND OBJECTIVES; MANAGEMENT; LONG RANGE PLANNING AND OBJECTIVES; MANAGEMENT FUNCTIONS; MANAGEMENT POLICY; MANAGEMENT STRATEGY; PLANNING; RESOURCE ALLOCATION; RESEARCH AND DEVELOPMENT; PERFORMANCE APPRAISAL; MERGER; POLITICS; SOCIAL ISSUES.

76A30117 ISSUE 13 PAGE 2033 CATEGORY 66
76/00/00 31 PAGES UNCLASSIFIED DOCUMENT

Energy system modeling and forecasting
CIO: UNITED STATES
MAJS.: /*DYNAMIC MODELS/*ENERGY METHODS/*ENERGY TECHNOLOGY/*SYSTEMS ANALYSIS/*TECHNOLOGICAL FORECASTING
MINS: / ECONOMIC ANALYSIS/ ENERGY CONVERSION/ ENERGY POLICY/ENERGY SOURCES/ GAME THEORY/ MANAGEMENT PLANNING/PRODUCTION ENGINEERING/ RESEARCH AND DEVELOPMENT/ SYSTEMS MANAGEMENT
ABA: S.D.

ABS: This review provides an introduction to the scope, applications, methodology, and content of energy system models, particularly those developed and used in the United States. A classification of models is presented, and representative models are discussed. Three levels of planning are considered: policy planning, strategic planning, and tactical or operational planning. Energy system models provide support at all three planning levels, for regulatory agencies; for industrial planning, management, and evaluation of R&D programs; and for national energy policy and strategy planning. The objectives of these planning activities and the requirements imposed on the models are discussed. The trend of current research is toward developing models that integrate engineering/process models with more behavioral models to form energy/economic systems that treat the demand for and supply of energy types simultaneously with those for other factors of production. This approach should result in a substantial improvement in both the forecasting and the descriptive power of the resulting models.
Planning strategically for changes in an unpredictable environment, rather than passively adapting to changes, will result in a more effective organization. An organization should develop a strategy, even if it is not implemented. Otherwise, random external stimuli will form substitute, often unproductive, goals to fill the void. If an organization plans effectively under conditions of absolute turbulence, it can in turn plan effectively under a variety of conditions. Research-intensive organizations operating in turbulent environments can improve the effectiveness of their strategic planning process by: 1. improving their information processing capability, 2. controlling research programs, and 3. achieving compatibility in the goals of managers and researchers.

References.

DESCRIPTORS: Strategic; Planning; R&D; Institutions; Organizational behavior; Organization theory; Goals; Scientists


Klingberg, S.
Association of Coll. and Research Libraries, Chicago, IL.
Corp. Source Codes: 061851000
1 Jul 86 155p
Languages: English
NTIS Prices: Not available NTIS Journal Announcement: GRA18715
Country of Publication: United States
The 5-year plan of the Association of College and Research Libraries (ACRL) is presented, and the four goals of the plan are summarized: (1) to contribute to the total professional development of academic and research librarians; (2) to enhance the capability of academic and research libraries to serve the needs of users; (3) to promote and speak for the interests of academic and research librarianship; and (4) to promote study, research, and publication relevant to academic librarianship. In addition, the following aspects of the plan, planning process, and implementation are discussed: working principles underlying the plan; the planning model; the planning process; executive summary of goals, objectives and their sources; mission statement; strategic management directions; and implementation (overview, timeline, recommended changes in financial policies, development of the annual operating plan, and dissemination). A Member Needs Report, Strategic Factors Report, Strategic Audit Report, Resources Report, and ‘A Proposed Planning Process for the Association of College and Research Libraries’ are appended. (KM).
The present state and main trends in the evolution of organizational systems and methods of strategic planning of research and development are discussed, and a survey of literature in this field is presented. Modern planning methods are given two main classifications: (1) methods of project evaluation, and (2) methods for determining means of attaining the desired goals.
as the postulated threat is revised or refined. Analysis and simulation techniques must be devised to be used in testing and assessing the survivability/vulnerability of Air Force systems. Every US Air Force aircraft and missile system with a nuclear capability must be conceived, developed, built, and operated in accordance with nuclear safety standards and have characteristics that are compatible with design, safety, and operational requirements of the Air Force. TPO-3. Advanced nuclear and nonconventional weapon research and technology development must continue to identify those technologies that will provide improved tactical and strategic offensive and defensive warfare capabilities. This TPO is established to provide a vehicle for exploitation of new technology opportunities as they arise either as spinoffs from ongoing technology efforts or through independent research and development efforts. (Author)  
Descriptors: *Research management; *Air Force research; Air Force planning; *Strategic weapons; Ordnance laboratories; Nuclear weapons; Tactical weapons; Advanced weapons; Research facilities; Planning programming budgeting; Air Force budgets Defense planning  
Identifiers: TOD(Technical Objective Document); NTISDODXA

87A35446 ISSUE 15 CATEGORY 81 87/02/00 7 PAGES UNCLASSIFIED DOCUMENT  
UTTL: An extension of the analytic hierarchy process for industrial R&D project selection and resource allocation  
AUTH: A/LIBERATORE, MATTHEW J. PAA: A/(Villanova University, PA)  
CIO: UNITED STATES  
MAJS: /HIERARCHIES/PROJECT PLANNING/RESEARCH AND DEVELOPMENT/RESEARCH MANAGEMENT/RESOURCE ALLOCATION  
MINS: DECISION MAKING/ LITERATURE/ SELECTION  
ABA: Author  
ABS: The research and development project selection decision is concerned with the allocation of resources to a set of proposals for scientific and engineering activities. The project selection and resource allocation process can be viewed as a multiple-criteria decision-making problem, within the context of the long-range and strategic planning process of the firm. The purpose of this paper is to explore the applicability of an extension of the Analytic Hierarchy Process (AHP) for priority setting and resource allocation in the industrial R&D environment. In this paper, an AHP modeling framework for the R&D project selection decision is developed, and is linked to a spreadsheet model to assist in the ranking of a large number of project alternatives. Next, cost-benefit analysis and integer programming are used to assist in the resource allocation decision. The paper concludes with an evaluation of the suitability of this approach as an expert support system, and directions for future research and testing.
A Sectoral Approach to Strategic Planning for R&D
Linn, Robert A.
Research Mgmt v26n1 PP: 33-40 Jan/Feb 1983 CODEN: RESMA3
ISSN: 0034-5334 JRNLS CODE: RMG
DOC TYPE: Journal Paper LANGUAGE: English LENGTH: 8 Pages
AVAILABILITY: ABI/INFORM

Decisions concerning the focuses and procedures to use in a technological firm's research and development (R&D) effort can be made within the framework of an environmental or sectoral approach that takes into account: 1. the R&D department's own internal environment, 2. the intracompany environment, and 3. the external environment in which the company resides. The major external influences on R&D are: 1. stability and the need for change, 2. the prior art, 3. the effect of market share, and 4. current business and political factors. Due to the present uncertainty of the political and business climates, firms cannot define their goals by some measurable, quantifiable factor. Instead, they must define them according to qualitative objectives which determine how the firm is to reach its goals by allocation of human and other resources. One possible strategic option to consider is planning according to market share. The internal environment of a firm's R&D department - its structure, its role within the firm, and the economic strengths and weaknesses of the firm itself - will powerfully influence a firm's R&D strategy and effectiveness. Tables. Charts. References.
Multi-Criteria Decision Analysis as an Aid to the Strategic Planning of Energy R&D
Lootsma, F. A.; Meisner, J.; Schellemans, F.
European Jnl of Operational Research (Netherlands) v25n2
PP: 216-234 May 1986 CODEN: EuJORDT ISSN: 0377-2217
JRNŁ CODE: EJO
DOC TYPE: Journal Paper LANGUAGE: English LENGTH: 19 Pages
AVAILABILITY: ABI/INFORM

An attempt is made to demonstrate the use of multicriteria decision analysis to assist an advisory council in selecting areas of interest for government-financed energy research and development (R&D), subject to a budget constraint. The benefits of energy R&D may be hard to value in monetary terms. A different way of comparing the anticipated effects of energy R&D in various technological areas based on the opinions of the council members given a number of judgment criteria is described, followed by a maximization of the overall impact of an energy R&D program for a given level of expenditure. Since the council members have different backgrounds, their opinions may differ and so may the solutions of the optimization problem. The decision model can be employed as a discussion model highlighting the points of agreement and disagreement among them, so that they can focus on the latter in order to reach a vindicated compromise.

DESCRIPTORS: Public finance; Energy; R&D; Multiple criteria; Decision making; Strategic planning; Decision analysis; Decision making models; Preferences; Social impact; Mathematical models

This paper investigates the strategic planning and investments associated with research and development (R&D) project selection and budgeting within a division of an aerospace firm. A model is described that is used in an R&D planning environment where considerable risks result from technological, economic, governmental, and market factors. Several forms of a multi-attribute utility (MAU) objective function are maximized using mathematical programming techniques. Approximate methods, including compromise programming and goal programming, are evaluated and yield results that are reasonably close to and require less computation than more exact methods. Solutions are used to recommend to management an R&D portfolio that maximizes expected utility for the division.
Using management system balance sheets, (research conducted to assess the effectiveness of strategic planning, management by objectives, and human resource accounting)

Migliore, R. Henry; Bratschun, Neal
Planning Review (a publication of the Planning Forum) v15 March-April, 1987, p40(4)

SPECIAL FEATURES: illustration; table; forms
CAPTIONS: Management system balance sheet results (control vs. test organizations); Sample questions (from the seven-organization survey); Broadcast company; management system balance sheet results; Pipeline service company (management system balance sheet results).

The management system balance sheet (MSBS) method of surveying employees' opinions of their managers' effectiveness was used to assess strategic planning, management by objectives, and human resource accounting techniques at seven organizations. The MSBS method was developed by earlier research that proved its ability to accurately measure management effectiveness. The ten objectives of the MSBS research effort involving the administration of 500 questionnaires and the results indicated by the survey are discussed. The survey indicated that strategic planning and management by objectives programs improved employees' impressions of management effectiveness over time.

DESCRIPTORS: Management by objectives--research; Strategic planning--research; Human capital--research; Management science--methodology; Management--surveys; Comparative management--evaluation

87A27611# ISSUE 11 PAGE 1577 CATEGORY 14 RPT#: AIAA PAPER 87-0673 87/00/00 9 PAGES UNCLASSIFIED DOCUMENT

UTTL: Implementing strategic goals through operational planning and control
AUTH: A/MONAGHAN, DIANNE K.; B/BALDRACHI, JOHN A. PAA: B/(McDonnell Douglas Astronautics Co., Cocoa Beach, FL)
CIO: UNITED STATES
MAJS: /FLIGHT MANAGEMENT SYSTEMS/GROUND BASED CONTROL/ MANAGEMENT PLANNING
MINS: / LOGISTICS MANAGEMENT/ MANAGEMENT METHODS
ABA: M.S.K.
ABS: Techniques for developing operational plans for systematically meeting strategic goals while providing guidelines for organizational activities are described. Organizational planning is decomposed into establishment of strategic goals by top management, the definition of milestones and action plans, adjustments to the master plan and issuance of a schedule, and configuration of progress monitoring mechanisms. The roles of top, middle, department and line management personnel are explored, noting the necessity for clear lines of authority, responsibility and communication. Although subsequent external and operational events may necessitate changes in master plan, it is purpose of operational planning to minimize the occurrence and effects of downstream modifications and setbacks.

2-11
Strategic Planning and Research and Development - Can We Integrate Them?

Petroni, G.


To integrate corporate structures means to effectively link the organization’s goals, its rules and those who occupy the
roles. Despite this, there is a very difficult relationship between strategy and research. The main tension is the precarious balance between scientific and cultural interests of the researcher and the company need for scientific and technical exploration. Time will solve the problem. There is also a problem between innovative research and improvement research. In theory, the solution is to separate the research areas with three methods, make a director responsible for research with no staff available on the main board, use a research committee or form business teams. Whatever the system, the values of the researcher must be recognized. There is a difference between invention and innovation and recognition of creativity falloff. The most common organizational model where the goal is attainment of results, the matrix, is presented.

DESCRIPTORS: Strategic Planning; Research and Development; Tables; Charts; Integrated Approach; Matrix

Measures of Small Firm Effectiveness for Strategic Planning Research

Robinson, Richard B., Jr.
Jrnl of Small Business Mgmt v21n2 PP: 22-29 Apr 1983
CODEN: JSBMAU ISSN: 0047-2778 JRNL CODE: JSB
DOC TYPE: Journal Paper LANGUAGE: English LENGTH: 8 Pages
AVAILABILITY: ABI/INFORM

In the past, organizational effectiveness research has concentrated on large business. The definition and measurement of organizational effectiveness needs to be adapted to small business. The 4 components of organizational effectiveness in small firms are: 1. community involvement, 2. customer satisfaction, 3. owner return, and 4. employee satisfaction. The most popular measures for determining organizational effectiveness are return on sales and growth of sales. If future research could generate a large sample size, variations in the usefulness of profitability, sales, or other measures might be found between different firms. Future research could use a multiple regression or factor analysis approach. These approaches could help determine if return on sales and sales growth are significant measures of organizational effectiveness. Graph. Tables. References.

DESCRIPTORS: Small business; Organizational; Effectiveness Strategic management; Research; Measures; Studies; Statistical analysis; Strategic; Planning

Research Thrusts in Small Firm Strategic Planning

Robinson, Richard B., Jr.; Pearce, John A., II
Academy of Mgmt Review v9n1 PP: 128-137 Jan 1984 ISSN: 0363-7425 JRNL CODE: AMR
DOC TYPE: Journal Paper LANGUAGE: English LENGTH: 10 Pages
AVAILABILITY: ABI/INFORM

Small and growing firms face issues of strategic importance to their future survival and growth; yet, the state of knowledge relevant to the strategic management of these firms is inadequate. From a historical perspective, strategic planning research in small firms has emerged sporadically rather than in clear research tracks. An organized view is
presented of small firm strategic planning research; more than 50 planning-related studies from small firm settings are reviewed. The research that has dealt with strategic planning can be categorized into 4 major thrusts: 1. strategic planning practices, 2. value of strategic planning, 3. specific features of the planning "process," and 4. the "content" of strategies. The key issues and findings associated with each thrust are presented, along with possible future research guidelines. Tables. References.

DESCRIPTORS: Small business; Strategic; Planning; Research
This article summarizes key features of an interactive planning and decision support process for multiple criteria alternative selection situations. Probabilities, utility scores for the lowest level attributes, and attribute tradeoff weights, i.e., the parameters, can be imprecisely described by set inclusion. Within a specified structural model of the decision situation, the process allows the decisionmaker to iteratively select the mix of parameter value precision and alternative ranking specificity. By selecting this mix, the decisionmaker is able to direct and alternative selection process in an interactive manner, using alternative selection strategies based on behaviorally meaningful dominance search strategies. Emphasis is placed on the motivation of the research and the behavioral relevance of the support process.
Ideas for a permanent lunar base in the Kopff Crater are presented. The initial base could be started by mining into the side of the crater and building domes there, thus avoiding deadly radiation. The colony could expand outward into the crater by covering the outer domes with lunar soil. The planning and development of such a base is discussed, emphasizing the role of private enterprise. The possibility that the Soviets or the Europeans intend to build a lunar base is addressed.
Executives dissatisfied with the current productivity and innovativeness levels of industrial research must acknowledge the presence of the problem of inadequate linkage of corporate strategy to research. A study was conducted to review the extent to which corporate long-range research is influenced and affected by the long-range strategic planning of a company. Questions addressed included: 1. Are the horizons of corporate planning and research matched or mismatched? 2. What problems hinder the relating of long-range research to corporate objectives? A sampling of survey findings includes: 1. The majority of respondents (82%) indicated that their firms have formal long-range planning with the average time span being 6.5 years. 2. Both operating and corporate management are perceived as having an aversion to high-risk research and development (R&D). 3. Many respondents affirmed a serious information gap with regard to corporate goals and strategies between management and R&D personnel. 4. Perceived linkage problems arise from such causes as a mismatch in time horizons of business planners and researchers, and ineffective downward communication of corporate goals and strategies.

**Long-Range Strategic Planning in Japanese R and D**
Yamauchi, Ichizo
Futures (UK) v15n5 PP: 328-341 Oct 1983 CODEN: FUTUBD
ISSN: 0016-3287 JRNLM CODE: FUR
DOC TYPE: Journal Paper LANGUAGE: English LENGTH: 14 Pages
AVAILABILITY: ABI/INFORM

Prior to the 1970s, Japanese industries were not involved in strategic corporate planning and the formulation of long-range research and development (R&D) strategies. Instead, industrial planning was undertaken on the basis of fulfilling national goals for industrialization, promoted both by the Japanese government and industrialized nations following World War II. Japanese corporations were thus able to import technological information freely and implement new technologies without the need to assess their risks. An historical analysis of Japanese R&D planning reveals that differences in national industrial policy and corporate strategy are primarily determined by the timing of a nation’s stages of industrialization. Rather than cultural factors, Japan’s position as a follower in the path of advanced nations’ industrialization has influenced the nature of Japanese R&D planning. Now that national industrialization goals have been met, Japan must become a leader in technological innovation. Graphs.

DESCRIPTORS: Japan; R&D; Long term planning; Strategic; Planning; Technology transfer; Industrial development; History
The Office of Science and Technology Policy: Adaptation to a
President's Operating Style May Conflict with Congressionally
Mandated Assignments

General Accounting Office, Washington, DC. Program Analysis
Div.

Corps. Source Codes: 010682014; 411538
Report No.: GAO/PAD-80-79
3 Sep 80 64p
Report by the Comptroller General.
Languages: English
NTIS Prices: PC A04/MF A01 Journal Announcement: GRAI8101
Country of Publication: United States

In this report, we develop a profile of OSTP, describe
OSTP's compliance with the legislated mandate of Title III in
Public Law 94-282 for a study on Federal organization and
management of science and technology policy, and discuss the
extent to which OSTP is involved in strategic planning for
science and technology. We include a number of recommendations
to OSTP, and raise several issues for congressional
consideration. In this Administration, top officials of OSTP
believe that the broad legislative mandate for OSTP cannot be
met fully under present conditions and operating styles within
the Executive Office of the President. OSTP management and
staff also believe that all their work must be tied to the
existing policymaking process in the Executive Office of the
President, because they have no independent control over any
portion of the U.S. policymaking system. (Author)

Descriptors: *United States government; *Scientific organizations; Policies; Advisory activities; Budgets; Strategy; Research management
Identifiers: *Office of Science and Technology Policy;
NTISDODXA

87N16653# ISSUE 8 PAGE 1111 CATEGORY 81 RPT#: NASA-TM-89310 NAS 1.15:89310 PB87-103743 86/04/00
40 PAGES UNCLASSIFIED DOCUMENT

UTTL: Summary of strategies for planning Productivity Improvement and Quality Enhancement (PIQE)
CORP: National Aeronautics and Space Administration, Washington, D.C.
SAP: Avail: NTIS HC A03/MF A01
CIO: UNITED STATES
MAJS: /*AUGMENTATION/*IMPROVEMENT/*MANAGEMENT PLANNING/*NASA PROGRAMS/*PRODUCTIVITY/*QUALITY CONTROL
MINS: / REPORTS/ STRATEGY/ SUMMARIES
ABA: GRA
ABS: The Summary of NASA Strategies for Productivity Improvement and Quality Enhancement respond to NASA's
eighth top goal: Establish NASA as a leader in the
development and application of advanced technology and
management practices which contribute to significant
increases in both Agency and national productivity.
The Strategies provide the framework for development of the agency-wide Productivity Improvement and Quality Enhancement (PIQE) Plans.
Results of the Research and Development Task Force of the President's Private Sector Survey on Cost Control in the Federal Government are presented. Recommendations are made which, when fully implemented, could result in significant cost savings. Individual topics addressed include: strategic planning, R and D management and the budget process; privatization; administration of research grants to universities; NASA cost reporting; and research program reporting.

Institutional planning and long range goals are discussed. Topics covered include: history and accomplishments of ORNL; present role; strategic planning; research and development programs; laboratory organizations; nuclear and engineering technology programs; advanced energy systems programs; basic physical sciences programs; biomedical and environmental sciences programs; the Carbide years; and summary resource projections.
SECTION III

REPORTS, JOURNAL ARTICLES, AND CONFERENCE PAPERS ON
STRATEGIC MANAGEMENT OF RESEARCH AND DEVELOPMENT
Strategic Management of Technology
Ansoff, H. Igor
CODEN: JBSTDK ISSN: 0275-6668 JRNL CODE: JST
DOC TYPE: Journal Paper LANGUAGE: English LENGTH: 12 Pages
AVAILABILITY: ABI/INFORM

As the high-technology industry matures, successful companies will be those that revise their strategies from emphasis on the proliferation of technology-driven products to strategies that emphasize: 1. controlling the rate of technological advances, 2. segmenting the markets according to customer needs, and 3. designing products to meet those needs. One success strategy is to reduce the frequency of product innovation and to concentrate on product improvements that reflect market needs. When new technologies enter the market, firms that have been successful in the past typically cannot transfer their capabilities, skills, and management to the new technology. In order to make the transition, companies can implement a number of competence-enhancing measures. Some of these include: 1. broadening the forecasting and information systems, 2. analyzing the firm's possible success and selecting future strategies, 3. enlarging research and development budgets to include strategic budgets, and 4. changing the organizational structure to provide for flexible responses to changes. Tables. Charts. Graphs. References.

DESCRIPTORS: High technology; Strategic planning; Strategic management; Technological change; Product development; R&D
CLASSIFICATION CODES: 2310 (CN=Planning); 5400 (CN=Research & development)

Strategic Management of Industrial Technology: A Review of the Issues
Birnbaum, Philip H.
IEEE Transactions on Engineering Mgmt vEM-31n4 PP: 186-191
Nov 1984 CODEN: IEEEMAP ISSN: 0018-9391 JRNL CODE: IEE
DOC TYPE: Journal Paper LANGUAGE: English LENGTH: 6 Pages
AVAILABILITY: ABI/INFORM

The English language literature concerning the important relationship between strategic management and technological development in US industrial organizations is reviewed. Although still largely normative, there appears to be a consistent focus on life cycle approaches and a growing body of empirical evidence lending support to the argument that more successful companies use technology that is appropriate to different stages in the product life cycle. Overall, the role of strategic management in technological development is becoming more widely recognized by both practitioners and scholars. Additional research is needed in 2 primary areas: 1. confirmation studies, to investigate appropriateness of the life cycle approach for relating strategic management to appropriate technology, and 2. theoretical work, to improve current understanding of the role of research in strategic management. Charts. Graphs. References.

DESCRIPTORS: Technology; Management; Organizational; Life; Cycles; R&D; Engineering; Product life cycle; Strategic management
CLASSIFICATION CODES: 2500 (CN=Organizational behavior); 5400 (CN=Research & development); 2310 (CN=Planning)
Managing the New Venture Division: Research Findings And Implications For Strategic Management.

Burgenman, R.A.
Stanford University, Stanford, CA
Strategic Management Journal Vol.6, No.1, Jan./March 1985, P. 39-54, 16 Pages.

COUNTRY OF PUBLICATION: England LANGUAGE: English
CODEN: SMAJDB ISSN: 0143-2095
DOCUMENT TYPE: Journal ARTICLE TYPE: Feature; Research Findings
SPECIAL FEATURES: Bibliography: 25 references; includes Chart, Organization Charts, Tables;

Due to a need to maintain a competitive status in order to survive, many corporations are attempting to facilitate entrepreneurship. This has often resulted in the development of the new venture division (NVD), which has created new managerial problems related to a lack of understanding of the autonomous nature of the NVD. There are differences in characteristics between the present operating system and the NVD. Some problems encountered in integrating the NVD into corporate operations are: 1) domain; 2) synergy; 3) the management system; and 4) personnel transfers. There is considerable ambiguity in areas such as: 1) expected strategic importance in relation to corporate development; 2) volatile assessments of venture activities; and 3) the degree to which these ventures are related to the activities of the operating system. The overall concern is that large corporations should start to structure their operating systems in such a way as to be able to incorporate more autonomy in their respective departments. Creativity and action that is well organized can both create tension which a corporation must be able to deal with. Tables, charts, and an organizational chart are included.

DESCRIPTORS: Management Science; Management Strategy; Strategic Planning; Entrepreneur; Entrepreneurship; Corporate Behavior; Industrial Dynamics; Corporate Planning; Corporate Reorganization; Organizational Development; Operations Research; Operations Management; Autonomy; Creativity; Restructuring

Military Hardware Design

Implementing Strategic Management of Productibility in Military Hardware Design
(Master’s thesis)
Dawley, R. S.
Central Michigan Univ., Mount Pleasant.
Corp. Source Codes: 005860000; 394217
May 85 75p
Languages: English Document Type: Thesis
NTIS Prices: PC A04/MF A01 Journal Announcement: GRAI8522
Country of Publication: United States

The balance between functional design requirements and manufacturing capabilities in the design and production of military hardware must be established during the early stages of design development to maximize cost efficiency of the total system and to establish a foundation of preparedness in the event of industrial mobilization. This thesis reveals how such a balance has been obtained historically, and presents a strategy for developing production ready designs. The
characteristics that allow production personnel to readily build to a design are not automatically inherent in the design, but rather must be required to the design agency by high levels of authority. The findings indicate creation of a synergistic effect through design teams composed of both design and manufacturing personnel. Two new acronyms are presented. 1. PRAM-D, Productibility, Re1iabi11y, Availability, Maintainability and Durability. 2. DREP, Design Productibility Engineering and Planning, which is synonymous with producibility measures. The benefits of a fully implemented producibility program are optimal cost, schedule, and quality. (Author)

Descriptors: *Productivity; *Design to cost; *Cost effectiveness; *Management; Functions; Requirements; *Maintainability; Industrial personnel; Costs; Optimization; Production; *Military equipment; Industries; Mobilization; Manufacturing; Personnel; *Strategic materials; Theses; Reliability; Synergism

Identifiers: *Strategic management; *PEP(Productibility Engineering and Planning); NTISDODXA

The Importance of an Integrative Approach to Strategic Management Research.
Jemison, D.B.

Strategic management must use integrative research approaches to continue its progress. Mid-range theories must be developed, using researchers with complementary backgrounds. Common theoretical frameworks would be helpful. Mid-range theories can be helpful to multidisciplinary research groups. Doctoral candidates should have more broadened perspectives.

DESCRIPTORS: Management; Research; United States; Management Theory; 0605; 0446; 0528; 0232

Strategic Management In the United States Public Sector: A Research Appraisal and Prospectus.

Public sector organizations in the United States profess the desire to establish efficient operating procedures. They usually do not achieve this. One reason for their failure is the fact that their research usually aims at justifying decisions already made. Administrative policy science is a method by which public sector organizations may conduct meaningful research. It also serves as a framework for strategic management of long-term goals. Well-designed studies are needed in relation to strategic management in the public sector.

DESCRIPTORS: Charts; Graph; Tables; United States; Public Sector; Goals and Objectives; Efficiency; Government Spending Management; Strategy; Strategic Planning; 1227; 0191; 2256; 0528; 0460; 0251; 0662; 0708; 0605; 0251; 0251

3-3
Towards reconciliation of market performance measures to strategic management research.

Lubački, Michael; Shrieves, Ronald E.

SPECIAL FEATURES: illustration; table

CAPTIONS: Content analysis of samples and population by frequency.; Content analysis of sample by adjustment procedures.

The fields of strategic management research and market-based performance research study the same corporate phenomena, but reach different conclusions; for example, management studies indicate that corporate acquisitions improve the performance of the acquiring firm, whereas finance studies that are market-based conclude that acquisitions either do not affect performance or affect it only minimally. Certain research methodologies used by finance researchers, such as the capital assets pricing model and market models, are investigated and adapted for use by management research. The adaptations are evolved based on studies of corporate acquisitions. The adaptation attempted leads to a conclusion that finance research may incompletely measure corporate phenomena and events, due to its research selection of time frames, samples, statistical analyses, and benchmarks for normal returns.

DESCRIPTORS: Consolidation and merger of corporations-- research; Management research--analysis; Financial research-- analysis

Linking R&D with the Strategic Management Process of the Firm

Moser, Martin R.; Plante, Michael S.
Engineering Mgmt International (Netherlands) v4n2 PP: 127-132 Apr 1987 ISSN: 0167-5419 URNL CODE: EMI

DOC TYPE: Journal Paper LANGUAGE: English LENGTH: 6 Pages

AVAILABILITY: ABI/INFORM

There has been a problem with integrating research and development (R&D) with the overall corporate strategic planning process. Factors in the integration problem include: 1. lack of communication between the researchers and the planners regarding corporate goals and strategies, 2. the diversity of knowledge required for strategic decision making for R&D, and 3. the uncertainty in planning for R&D activity. A model is proposed for linking R&D with the firm's strategic management process. In this model, information flows into R&D from 4 sources -- 3 that are internal to the organization (marketing, manufacturing, and technical planning), and one that is outside (technological environment). The technical planning committee plays an important role in this model. The model reinforces functional integration of R&D with other departments as a prerequisite for including R&D planning within the overall strategic planning process. The model suggests that strategic planning and business-level planning are closely aligned. Charts. References.

DESCRIPTORS: Strategic management; R&D; Integration; Technical; Planning; Committees; Organizational structure; Models; Studies
How well research and development (R&D) activity is integrated with the industrial enterprise depends on the model adopted by management for structures, roles, and human resources. The model chosen should allow integration between R&D and the enterprise and should encourage innovation. Management may take either of 2 roads to integration, as shown by the experience of research laboratories in the US and in Europe. The 2 roads are the managerial integration model and the technological integration model. The technological integration model prevails in Germany. This model views productive activity as a means of social and civil progress. Inside these companies, a technical/scientific orientation is dominant. In English-speaking countries, the managerial integration model prevails. This model is based on entrepreneurial competition. Productive activity is the source of individual wealth. Within these companies, research is seen a means to achieving goals. The technological model may promote a more lasting sense of belonging to the company that could hold greater potential for long-term success. Charts. References.

DESCRIPTORS: Strategic; Planning; R&D; Organizational; Models; Studies; Technological; Integration; Technological change; Management development; Organization development

Canada’s 20 largest multinational enterprises (MNE) are identified and compared to MNEs of the US, Japan, and Europe in terms of size, research and development (R&D), performance, and strategic management. Canadian MNEs tend to be small and to focus R&D efforts on process rather than product innovation. However, their performance is comparable to US, Japanese, and European MNEs. Most MNEs have developed technology-based competitive advantages. In contrast, Canadian MNEs tend to be resource-based and have developed competitive advantages in management and marketing, as demonstrated through analysis of Canada’s 4 largest pulp and paper multinationals. These firms have focused on exploiting Canada’s vast natural resources through long-term leasing and licensing arrangements with government. Their operations are vertically integrated, promoting capital barriers to industry entry and reducing supplier bargaining power. Marketing strategy has emphasized long-term customer relationships, salesforce expertise, and high-quality service. Tables. References.

DESCRIPTORS: Canada; Multinational corporations; International trade; Performance; Strategic management; Statistical data; Many companies; R&D; Sales; Rates of return
The ability of lower tier suppliers to meet current and long-term requirements of prime defense contractors for strategic resources is the focus of this report. Included in the strategic resources discussed are key materials, technologies, and manufacturing capabilities/capacities vital to the supply of major weapon systems programs. The report looks at a cross-section of Department of Defense (DOD) prime contractors to ascertain whether a strategic management system exists and, if so, how effective certain contractor programs have been. Although the study does find strong evidence that prime DOD contractors are performing good strategic planning, there appears to be rather poor success at strategic resource management. Forecasting, not assuring, that these resources will be available when required seems to be normal industry practice. The report provides a normative model to assist company management in improving strategic resource management programs. (Author)

Descriptors: *Management planning and control; Resource management; Contract administration; Department of Defense; Manufacturing; Materials; Weapon systems; Cost analysis; Marketing; Decision making; Government procurement; Policies; Industries; Regulations; Production; Long range (Time); Feasibility studies; State of the Art; Acquisition; Incentive contracts; Research management

Two common objections to laboratory research in strategic management are discussed. The first objection is to the artificiality of laboratory experiments and the fact that the results are not representative of the real world. The second objection is that in an emerging discipline like strategic management, exploratory field research is necessary in order to identify and define variables. Results then are sometimes dismissed as premature quantification and misleading. These problems are critically examined. A model for research combining both methods is presented. Advantages and difficulties of the dual approach are examined.

DESCRIPTORS: Strategy; Management; Field Study; Strategic Planning; Modeling: 0251; 0605; 1544; 0251; 0239
Successful strategic management of technological innovations requires high degrees of integration at several levels of the organization. Detailed field studies with over 200 new product innovations at 50 US firms were conducted. A model that focuses on the concepts of organizational integration and strategic management of new product innovations was proposed. The model: 1. integrates project organizational and environmental levels of variables, 2. posits contingencies between these variables and 3 empirically derived new product development management methods, and 3. is empirically based. Three phase transfer models have been identified -- stage-dominant, phase-dominant, and task-dominant. To ensure successful innovation, organizations may need to select the innovation process that just fits their conditions. Several propositions for empirical testing are also suggested. Tables, Charts, References.

DESCRIPTORS: Strategic management; Innovations; Product development; Models; Corporate culture; Organizational; Strategy; R&D; Organizational structure

Mapping Strategic Management Research.
Thomas, H.
Illinois, Univ. of (Urbana Champaign), Urbana Champaign, IL
Journal of General Management Vol.9, No.4, Summer 1984, P. 55-72. 9 Pages.
COUNTRY OF PUBLICATION: England LANGUAGE: English
CODEN: JGMAAX ISSN: 0306-3070
DOCUMENT TYPE: Journal
SPECIAL FEATURES: Bibliography: 56 references; includes Tables, Block Diagrams;

Strategic management, the currently accepted term for business policy and planning, represents a field of study which is still at a young and evolutionary stage. Research literature in strategic management is reviewed, showing that the field suffers from an identity crisis about its paradigms and lack of consensus about appropriate research directions and traditions. Etzioni's mixed scanning approach to management research provides a promising method of examining the contribution of alternative approaches to theory achieving a useful measure of reconciliation among them. The need exists for theory development in this field and, most likely, theory search would most profitably be directed toward contingency theories and theoretical models with which to analyze policy questions. An extensive bibliography, figure and tables are included.

DESCRIPTORS: Management Strategy; Strategic Planning; Management Policy; Management Theory; Planning; Business Planning; Strategy; Long Range Planning and Objectives; Organization Planning; Strategic Management; Policy; Research Research and Development
The process of strategic management of research and development (R&D) is compared in case studies of an ethical pharmaceuticals firm and an electronics firm. Emphasis is placed on the role of strategic decision analysis at the project analysis and evaluation stage. The steps in the decision processes that may lead to new applied research products in both firms include: 1. the generation of ideas, 2. analysis of projects considered for selection, 3. physical product development, and 4. test marketing. It appears that, in both cases, assessors had difficulty in confronting future events, although assessment problems were more complex in the pharmaceuticals firm. Discounting processes must be applied carefully to R&D projects, especially if applied routinely to long-term R&D projects as in ethical pharmaceuticals. There was a perceived need for flexible decision criteria in both cases; both firms also perceived the process of strategic management of R&D as critical to corporate growth. The policy dialogue framework, providing a choice process for projects and portfolios, proved to be very useful in both firms in dealing with conflicting viewpoints. Tables, Graphs, Diagrams, References, Appendix.

DESCRIPTORS: Studies; Strategic management; R&D; Decision analysis; Procedures; Applications
SECTION IV

BOOKS
ON
STRATEGIC PLANNING AND MANAGEMENT OF RESEARCH AND DEVELOPMENT
AUTH: A/Bass, Frank Myron.; B/Bultez, Alain V. A/1926-
UTTL: Optimal strategic pricing of technological innovations
/ by Frank M. Bass, Alain V. Bultez.
Institute for Research in the Behavioral, Economic, and Management Sciences, Krannert Graduate School of
Management. Purdue University, West Lafayette, Ind.: 16, (6) p., (4) leaf of plates: ill.: 28 cm.
Paper / Institute for Research in the Behavioral, Economic, and Management Sciences, Krannert Graduate
School of Management: no. 760 Bibliography: p. (4)-(6) (2nd group)
LC: Technological innovations -- Mathematical models.
Prices -- Mathematical models. Production (Economic
theory)
ADDED: Series: Paper (Krannert Graduate School of
Management. Institute for Research in the Behavioral,
Economic, and Management Sciences): no. 760.
MAIN-AUTH TRACE-TITL*AUTH* CATLG BY-LC
81/10/15

84V23003 1984 ISS: T175.5.S83 1984 0-669-08269-4
(alk. paper) 658.57 LC-83-49526 OCM10696814;
RLINCARC85-B1658
AUTH: A/Bozeman, Barry.; B/Crow, Michael M.; C/Link,
Albert N.
UTTL: Strategic management of industrial R&D / edited by
Barry Bozeman, Michael Crow, Albert Link.
.: 24 cm.
LC: Research, Industrial -- Management.
NASA: / INDUSTRIAL MANAGEMENT/ INDUSTRIES/ RESEARCH
AND DEVELOPMENT/ RESEARCH MANAGEMENT
FR: / T175.5.S83 1984 GD: / C 85-039089C.1/ S
86-004207C.2/ T175.5.S83 1984/ 8530188/ 8620072 HQ: / T175.5.S83
MAIN-TITL TRACE-AUTH* CATLG BY-LC
84/01/03 AVAIL: / FLIGHT/ GODDARD/ NASA HQ.

84V16194 1969 ISS: HD69.D4B75 658.4 LC-69-11695
AUTH: A/Broom, H. N.
UTTL: Business policy and strategic action; TLSP: text,
cases, and management game (by) H. N. Broom.
illus. 24 cm.
LC: Decision-making. Decision-making -- Case studies.
Management games.
MAIN-AUTH TRACE-TITL* CATLG BY-LC
69/05/05

658.4012 LC-83-26399
AUTH: A/Byars, Lloyd L.
UTTL: Strategic management : TLSP: planning and
implementation : concepts and cases / Lloyd L. Byars.

4-2
Government control and multinational strategic management: TLSP: power systems and telecommunication equipment / Yves L. Doz.
Praeger, New York : xvi, 277 p. ; 24 cm.
Includes bibliographical references and index.
MAIN-AUTH TRACE-TITL+ CATLG BY-LC

Strategic planning: TLSP: contemporary viewpoints / Marie S. Ensign and Laurie Nogg Adler, editors : foreword by Donald F. Heany.
ABC-Clio Information Services, Santa Barbara, Calif. : xxii. 231 p. : ill. ; 24 cm.
The Dynamic organization series Includes indexes.
LC: Strategic planning -- Abstracts.
NASA: / ABSTRACTS/ MANAGEMENT PLANNING/ STRATEGY
GD: / C 86-00537C.1/ HD30.28.S7343 1985/ 8620067 LA:
/ HD30.28. S7343
MAIN-TITL TRACE-AUTH+ CATLG BY-LC
85/02/02 AVAIL: / GODDARD/ LANGLEY

Strategic flexibility in business / J. Stuart Evans.
ADDED: Series: Research report (Business Intelligence Program (SRI International)) ; 678.
MAIN-AUTH TRACE-TITL+ CATLG BY-LC
84/10/18

Pitman Pub., Boston : xii, 276 p. : ill. ; 25 cm.
Pitman series in business and public policy Includes bibliographies and index.
LC: Corporate planning.
MAIN-AUTH TRACE-TITL+ CATLG BY-LC
83/06/20
Georgetown University. Center for Strategic and International Studies.
Published for the Center for Strategic and International Studies, Georgetown University (by) Sage Publications, Beverly Hills: 88 p.: ill.: 22 cm.
LC: International business enterprises -- Planning.
International economic relations -- Political aspects.
Industry and state.
MAIN-AUTH TRACE-SERS•CORP•TITL• CATLG BY-LC
82/02/08

658.4012 LC-83-1336
AUTH: A/Hamermesh, Richard G.
UTTL: Strategic management / Richard G. Hamermesh, editor.
LC: Management -- Addresses, essays, lectures.
Corporate planning -- Addresses, essays, lectures.
NASA: / MANAGEMENT
MAIN-TITL TRACE-AUTH* CATLG BY-LC
83/02/03 AVAIL: / NASA HQ./ WALLOPS

82V23860 1981 ISS: HD30.28.H37 9-517-38124-7 (pbk.)
658.4012 LC-81-174151
AUTH: A/Harju, Paavo.
UTTL: Attitude of strategic managers toward formalized corporate planning: TLSP: a study of its variance explained by organizational variables and of its effects on the profitability of the firm / Paavo Harju.
Turku School of Economics, Turku: 151 p.: 22 cm.
Thesis (doctoral)--Turku School of Economics, 1981.
Bibliography: p. 140-151.
LC: Corporate planning.
ADDED: Series: Turun kauppakorkeakoulun julkaisuja.
MAIN-AUTH TRACE-TITL+ CATLG BY-LC
82/05/03 PUBL In FINLAND

AUTH: A/Harrigan, Kathryn Rudie.
UTTL: Strategic flexibility: TLSP: a management guide for changing times / Kathryn Rudie Harrigan.
Bibliography: p.
LC: Organizational change. Industrial management.
MAIN-AUTH TRACE-TITL+ CATLG BY-LC
85/02/27
AUTH: A/Harvey, Donald F.

UTTL: Cases in business policy and strategic management / Don Harvey.
Includes bibliographies.
LC: Corporate planning -- United States -- Case studies. Management -- United States -- Case studies.
ADDED: Title: Business policy and strategic management.
MAIN-AUTH TRACE-TITL* CATLG BY-LC
83/06/14

AUTH: A/Harvey, Donald F.

UTTL: Business policy and strategic management / Don Harvey.
C.E. Merrill Pub. Co., Columbus, Ohio : xiv, 752 p. : ill. ; 27 cm.
Includes bibliographical references and indexes.
LC: Corporate planning. Management.
MAIN-AUTH TRACE-TITL* CATLG BY-LC
83/04/25

AUTH: A/Hax, Arnoldo C.; B/Majluf, Nicolás S., B/1945-

Includes index.
LC: Corporate planning. Management.
NASA: / INDUSTRIAL MANAGEMENT/ PLANNING
/ HD30.28.H411 1984
MAIN-AUTH TRACE-TITL*AUTH* CATLG BY-LC
84/03/28 AVAIL: / GODDARD/ JPL

AUTH: A/Hax, Arnoldo C.

UTTL: Readings on strategic management / edited by Arnoldo C. Hax.
Includes index.
LC: Corporate planning -- Addresses, essays, lectures.
NASA: / INDEXES (DOCUMENTATION)/ MANAGEMENT PLANNING/ ORGANIZATIONS/ PLANNING/ STRATEGY
MAIN-TITL TRACE-AUTH* CATLG BY-LC
84/05/29 AVAIL: / GODDARD/ NASA H0.
AUTH: A/Kagono, Tadao. A/1947-


ADDED: Title: U.S.-Japan comparison of strategy and organization.

NASA: / BIBLIOGRAPHIES/ COMPARISON/ INDUSTRIAL MANAGEMENT/ INDUSTRIES/ JAPAN/ MANAGEMENT PLANNING/ PLANNING/ STRATEGY/ UNITED STATES

AUTH: A/Kastens, Merritt L.


LC: Small business -- Management.

NASA: / COMMERCE/ DECISIONS/ JUDGMENTS/ MANAGEMENT/ PSYCHOLOGY/ SELECTION

AUTH: A/Keegan, Warren J.


LC: Management -- Psychological aspects. Typology (Psychology)

NASA: / COMMERCE/ DECISIONS/ JUDGMENTS/ MANAGEMENT/ PSYCHOLOGY/ SELECTION


4-10
AUTH: A/Marrus, Stephanie K., A/1947
LC: Corporate planning -- Handbooks, manuals, etc.
NASA: / INDUSTRIAL MANAGEMENT/ MANAGEMENT PLANNING
MAIN-AUTH TRACE-TITL* CATLG BY-LC
83/08/01 AVAIL: / AMES-A/ GODDARD

AUTH: A/Mason, Richard O.; B/Mitroff, Ian I.
NASA: / PLANNING
JPL: / H61.M411
MAIN-AUTH TRACE-TITL*AUTH* CATLG BY-NASA HQ
81/12/07 COPYRIGHT AVAIL: / JPL/ NASA HQ.

MAIN-AUTH 1RACE-TITL*AUTH* CATLG BY-LC
83/05/20

AUTH: A/McNamee, Patrick B.
LC: Corporate planning. Industrial management.
ADDED: Title: Tools and techniques for strategic management.
NASA: / INDUSTRIAL MANAGEMENT/ ORGANIZATIONS/ STRATEGY
LA: / HD30.28.M3855
MAIN-AUTH TRACE-TITL* CATLG BY-LC
84/10/25 PUBL In UNITED KINGDOM AVAIL: / LANGLEY
I 478V19250 1978 ISS: 00 HF5548.2.R247 0-879093-89-7
658.4032 LC-78-2660
AUTH: A/Radford, K. J.
UTTL: Information systems for strategic decisions / K. J. Radford.
Includes index.
LC: Management information systems -- Decision-making.
NASA: / DECISION MAKING/ MANAGEMENT INFORMATION
SYSTEMS
MAIN-AUTH TRACE-TITL* CATLG BY-LC
/ / AVAIL: / NASA HQ.

80V13881 1980 ISS: 00 HD30.28.R3 0-835970-68-X
658.4012 LC-79-27214
AUTH: A/Radford, K. J.
Includes bibliographical references and index.
LC: Corporate planning.
NASA: / PLANNING/ PROFILE METHOD (FORECASTING)
MAIN-AUTH TRACE-TITL+ CATLG BY-LC
/ / AVAIL: / LANGLEY

79V39482 1979 ISS: 00 HD30.28.R67 0-814455-14-X
658.401 LC-79-11194
AUTH: A/Rothschild, William E.
$14.95 Includes index.
LC: Corporate planning.
MAIN-AUTH TRACE-TITL+ CATLG BY-LC
/ / 

(pbk.) LC-85-18613
AUTH: A/Rowe, Alan J.; B/Mason, Richard O.; C/Dickel, Karl E.
Includes bibliographies and index.
LC: Strategic planning -- United States. Management --
United States -- Case studies.
NASA: / MANAGEMENT/ METHODOLOGY/ PLANNING/ UNITED
STATES
GD: / HD30.28.R677 1986/ 8620085/ C 86-004520C.1
MAIN-AUTH TRACE-TITL*AUTH* CATLG BY-LC
03/27/86 AVAIL: / GODDARD

4-17
AUTH: A/Schaffir, Walter B.
UTTL: Strategic business planning : TLSP: some questions for the chief executive / Walter B. Schaffir.
Presidents Association, New York : 52 p. : ill. ; 23 cm.
Presidents Association special study ; no. 63 $10.00
LC: Corporate planning.
ADDED: Presidents Association. Special study ; no. 63.

AUTH: A/Shaffer, Ruth G.
UTTL: Developing strategic leadership / by Ruth Gilbert Shaffer.
Conference Board report ; no. 847 Includes bibliographical references.
LC: Corporate planning. Leadership.

UTTL: Strategic management / Arthur Sharpelin.
McGraw-Hill series in management Includes bibliographies and index.
LC: Corporate planning. Industrial management.

AUTH: A/Sherman, Philip M.
UTTL: Strategic planning for technology industries / Philip M. Sherman.
Includes bibliographical references and index.
LC: Corporate planning.
ADDED: Title: Technology industries.

4-19
SECTION V

SOURCES OF LITERATURE
SECTION V

SOURCES OF LITERATURE

The following is a list of known sources from which to obtain the Literature cited in this document. Other sources may also be available.

Journal Articles

(1) Data Courier, Inc. (ABI/INFORM)
   620 South Fifth Street
   Louisville, KY 40202
   Tel. 800-626-2823
       502-582-4111

(2) Linda Hall Library
    5109 Cherry Street
    Kansas City, MO 64110
    Tel. 816-363-4600

(3) Dynamic Information
    Attn: Manager Document Delivery
    P. O. Box 8019
    Redwood City, CA 94065-0919
    Tel. 415-591-5900

Conference Papers

(1) Engineering Information, Inc.
    Document Delivery Service, Rm. 204
    345 East 47th Street
    New York, NY 10017
    Tel. 800-221-1044
    or 212-705-7301

(2) Linda Hall Library
    5109 Cherry Street
    Kansas City, MO 64110
    Tel. 816-363-4600

Government Reports

Customer Service Staff
National Technical Information Service
U.S. Department of Commerce
5285 Port Royal Road
Springfield, VA 22161
Tel. 703-487-4660

NASA reports are typically identified with "N": numbers, e.g., 87N26680; DoD reports are identified with "AD" numbers, e.g., AD-A156766.

Books

Available from book dealers and/or publishers.