(2)

1993
Executive Research Project
S97

Strategic Analysis of Defense Industry

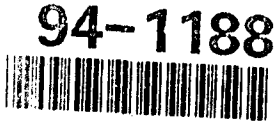
* * * * * * * * * * * * *

Watching the Invisible Hand

Captain
Michael D. Redshaw
U.S. Navy

Faculty Research Advisor
Professor Fred L. Meyer

The Industrial College of the Armed Forces
National Defense University
Fort McNair, Washington, D.C. 20319-6000



Unclassified
SECURITY CLASSIFICATION OF THIS PAGE

REPORT DOCUMENTATION PAGE

1a. REPORT SECURITY CLASSIFICATION Unclassified	1b. RESTRICTIVE MARKINGS
2a. SECURITY CLASSIFICATION AUTHORITY N/A	3. DISTRIBUTION / AVAILABILITY OF REPORT Distribution Statement A: Approved for public release; distribution is unlimited.
2b. DECLASSIFICATION / DOWNGRADING SCHEDULE N/A	
4. PERFORMING ORGANIZATION REPORT NUMBER(S) NDU-ICAF-93-097	5. MONITORING ORGANIZATION REPORT NUMBER(S) Same
6a. NAME OF PERFORMING ORGANIZATION Industrial College of the Armed Forces 6b. OFFICE SYMBOL (If applicable) ICAF-FAP	7a. NAME OF MONITORING ORGANIZATION National Defense University
6c. ADDRESS (City, State, and ZIP Code) Fort Lesley J. McNair Washington, D.C. 20319-6000	7b. ADDRESS (City, State, and ZIP Code) Fort Lesley J. McNair Washington, D.C. 20319-6000
8a. NAME OF FUNDING / SPONSORING ORGANIZATION 8b. OFFICE SYMBOL (If applicable)	9. PROCUREMENT INSTRUMENT IDENTIFICATION NUMBER
8c. ADDRESS (City, State, and ZIP Code)	10. SOURCE OF FUNDING NUMBERS PROGRAM ELEMENT NO. / PROJECT NO. / TASK NO. / WORK UNIT ACCESSION NO.
11. TITLE (Include Security Classification) Strategic Analysis of Defense Industry Watching the Invisible Hand	
12. PERSONAL AUTHOR(S) Michael Redshaw	
13a. TYPE OF REPORT Research	13b. TIME COVERED FROM Aug 92 TO Apr 93
14. DATE OF REPORT (Year, Month, Day) April 1993	15. PAGE COUNT 34
16. SUPPLEMENTARY NOTATION	

17. COSATI CODES			18. SUBJECT TERMS (Continue on reverse if necessary and identify by block number)
FIELD	GROUP	SUB-GROUP	

19. ABSTRACT (Continue on reverse if necessary and identify by block number)

SEE ATTACHED

20. DISTRIBUTION / AVAILABILITY OF ABSTRACT ☒ UNCLASSIFIED/UNLIMITED ☒ SAME AS RPT. ☐ DTIC USERS	21. ABSTRACT SECURITY CLASSIFICATION Unclassified
22a. NAME OF RESPONSIBLE INDIVIDUAL Judy Clark	22b. TELEPHONE (Include Area Code) (202) 475-1889 22c. OFFICE SYMBOL ICAF-FAP

DD FORM 1473, 84 MAR — 83 APR edition may be used until exhausted. All other editions are obsolete.

SECURITY CLASSIFICATION OF THIS PAGE
UNCLASSIFIED

ABSTRACT

TITLE: Strategic Analysis of Defense Industry
****
Watching the Invisible Hand

AUTHOR: Captain Michael D. Redshaw, U.S.Navy

SUBJECT: As Defense procurement policies and regulations become ever more complex, strategic decisionmaking by senior defense officials has become more complicated. This paper briefly describes the decline of defense industry strength, identifies the principle causes, and proposes a more analytic and business-like approach to be used by defense officials in reviewing defense industry health. The paper concludes with a proposed strategic audit format to accomplish this review.

1993
Executive Research Project
S97

Strategic Analysis of Defense Industry

* * * * * * * * * * * * * *

Watching the Invisible Hand

Captain
Michael D. Redshaw
U.S. Navy

Faculty Research Advisor
Professor Fred L. Meyer

The Industrial College of the Armed Forces
National Defense University
Fort McNair, Washington, D.C. 20319-6000

DISCLAIMER

> Every individual endeavors to employ his capital so that its produce may be of greatest value. He is in this led by an invisible hand to promote an end which was no part of his intention. By pursuing his own interests he frequently promotes that of society more effectively than when he really intends to promote it.
>
> Adam Smith
> Economist
> 1776

CRISIS IN NATIONAL DEFENSE

The Defense industrial base is in decline. The changing nature of the threats facing the United States, inevitable reductions in the resources devoted to defense, the accumulated impact of years of adverse legislation and regulation, increased global interdependence, and evolutionary adjustments in the structure of U.S. military forces will underscore and magnify this trend. The defense industry is not well positioned to meet this new challenge. Years of laissez faire economic policies have left it financially crippled.

The myth of free market forces in this industry has been the single greatest cause of its decline and remains the single greatest obstacle to substantive policy reforms. Failure to recognize the special "monopsony" relationship between buyer and seller perpetuates the assumption that "natural" forces will sort things out spontaneously in a manner compatible with U.S. security and industrial interests. The result has been declining capitalization, consolidations, defections to other ventures, and major plant closures. We seem to have forgotten that profitability is essential if a company is to be a healthy, reliable defense supplier.

> The philosophy of the Department is not to interfere with the operation of the free market. We will not attempt to determine the appropriate size of the defense market...and we will not factor in the consequences of the selection of a contractor for the overall structure of the industry.
>
> Eleanor Spector
> Director, Defense
> Procurement
> 1992

Today, defense firms are under intense pressure to further consolidate and diversify. They are expected to downsize without losing critical technologies, compete in the civil marketplace where most have no experience, and maintain mobilization preparedness covering the entire spectrum of conflict including non-military contingencies that affect national security. Some prominent defense firms will not survive this transition; others will be successful. As this "commercialization" of the defense industry proceeds it will become increasingly important that policy-makers regularly monitor the corporate health of the industries essential to the national defense. This paper both: provides an overview of the precarious financial position of many prominent defense firms, and proposes a means by which industry health may be monitored. The thesis is that if companies which make up the defense industrial base are not strong - financially as well as technically - the future of the industry is at risk, and our country's defense base is in danger. Clearly, the potential impact of poor financial condition makes it essential that our senior policy-makers be regularly informed of defense corporate financial health.

THE WAY WE ARE!

From Concord Bridge in 1775 to the defense of South Korea in 1950, the United States had no large-scale military forces in peacetime and no permanent defense industrial base. When war threatened, civilian industry was mobilized to produce the implements of war and was swiftly re-converted at war's end to peaceful pursuits. Following the mobilization effort for the Korean War, the need for American autarky in defense industrial capacity became recognized as a national security prerequisite. The result, unique to the post Korean War era and depicted in Table I, is a highly specialized sector of American industry heavily dependant upon defense procurement and upon which the Defense Department is heavily dependant for supplies.

Table I: SALES TO U.S. GOVERNMENT (JAN 1992)

Company	Percent of Sales
Grumman	91
Northrop	90
Lockheed	87
General Dynamics	84
Loral	75
McDonnell Douglas	63
Raytheon	55
Litton	45
Rockwell	44
Martin Marietta	25
Boeing	17

Source: USAF(FM). "Financial Analysis of the Aerospace/Defense Industry." 1992

Beginning in the 1980's relations between the government and Defense industry declined while competition from foreign firms increased. Defense products became characterized by;

* technical complexity
* high cost
* low volume production subject to political pressures
* requirements for high reliability and maintainability
* long development cycles

Additionally, charges of industry fraud and misconduct led to a variety of studies which included the Carlucci Initiatives, the Packard Commission, and the Defense Financial and Investment Review. The resulting procurement legislation and regulation were implemented piecemeal, and therefore government leaders failed to recognize the overall impact on the business factors (ie. health) of the defense firms. The resulting program stretch-outs, inefficient production rates, profit margin reductions and increasingly risky cost sharing arrangements became the rule rather than the exception.

During the 1980's, industry was stimulated to build new facilities based upon some very optimistic plans which never came to fruition. The industry was told to build-up for the $400 to $500 billion defense budgets projected in the mid-1980's which turned out to actually peak at about the $350 billion range. The result was the accumulation of significant defense industrial over-capacity. In addition to imposing these major industry problems, the government experimented with contract terms and conditions, as well as business practices already detailed, eroding returns and increasing unit costs.

AN ARSENAL IN TROUBLE

Today's defense firm operates in a weakening market with heavy debt, difficulty of borrowing, considerable excess capacity, low cash generation, high borrowing risk, obsolete

production equipment, little capital investment, relatively low productivity, mixed quality, and rapidly rising costs. Table II shows defense industry debt loads for representative defense firms;

Table II: Defense Industry Debt Loads, Dec 1991

Company	Long Term Debt (Millions)	Debt as Pct of Total Capital
McDonnell Douglas	$4,847	57%
Litton	1,354	49
Grumman	766	46
TRW	1,188	46
Lockheed	1,589	40
Raytheon	42	38
General Dynamics	821	35
Martin Marietta	596	27
Boeing	$1,298	17%

Source: USAF(FM). "Financial Analysis of the Aerospace /Defense Industry" 1992

Defense industry activity is encouraged to stay within government constraints and to document compliance at the expense of innovation and investment. Profits have declined to about one half of the Standard and Poor's 500 average. Stock values have declined over 40 percent. With heavily discounted stocks and the loss of access to the equity markets, defense companies additionally suffered declining bond ratings as shown in Table III:

Table III: Defense Industry Bond Ratings, Jan 1992

Company	S&P Rating
Boeing	AA
General Dynamics	A-
Grumman	BBB-
Litton	BBB
Lockheed	A
Loral	BBB+
Martin Marietta	A+
McDonnell Douglas	BBB
Northrop	B
Raytheon	AA-
Rockwell	AA
TRW	A-

Source: USAF(FM). "Financial Analysis of the Aerospace /Defense Industry" 1992.

Many defense firms have adopted a strategy of managing for cash given their high risk, negative growth, overcapacity, and low margins.

WHAT IS GOING TO HAPPEN?

The Defense industry is embarking on paths already trodden by commercial industry a decade earlier. During the 1980's, mergers and acquisitions were sanctioned and encouraged by government policy. Some of the nation's largest corporations diversified into totally unrelated markets in which they had little, if any, interest. Some examples include;

* Mobile Oil's purchase of Montgomery Ward
* Exxon's purchase of Reliance Electric
* U.S.Steel's purchase of Marathon
* Getty Oil's purchase of Entertainment Sports Network (ESPN).

The results were catastrophic causing subsequent divestiture and significant financial losses. The slogan "Jack of all trades and master of none!" came frequently to mind.

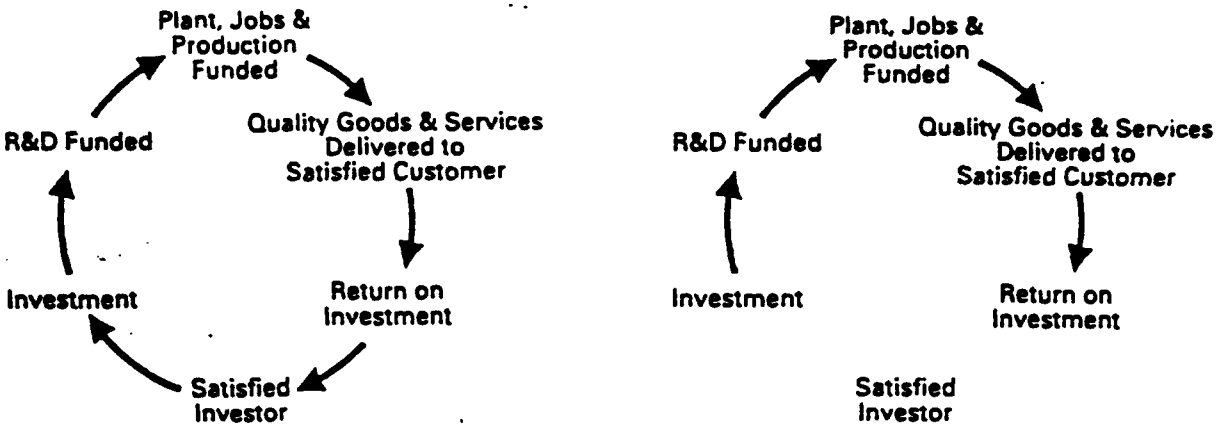
In the 1990's, defense industries will be forced to merge with commercial concerns or acquire commercial subsidiaries to remain in business. We should not underestimate how difficult this transition will be, nor how severe the trauma will be to corporate cultures accustomed to producing high quality, high performance products for use by military forces. Market-mix alternatives, attack strategies for market entry, competitive positioning, and profit-optimization are a few of the new competencies which must be mastered by the arms maker turned salesman. The cruel reality of the commercial marketplace will claim many casualties.

WHY SHOULD WE CARE?

The national security needs of the U.S. will continue to rely on the defense industry in whatever form it survives. If the government is unable to establish a means to manage the downsizing, it will assume the role of observer as the process unfolds. But now, the transformed defense firms will be subjected to market forces and externalities to which they were previously more immune.

Investment, research and development, delivery of quality products and services, reasonable return on investment, and satisfied investors create a closed loop as depicted in figure 1:

Figure 1: The Business Cycle



Source: William A. Anders. "Rationalizing America's Defense Industry" Defense Week 12th Annual Conference, 30 October 1991

If that loop is unbroken, a commercial industry is healthy. Break any link, and it becomes dysfunctional. Perhaps the link most overlooked by monitors of defense industry is the one between return-on-investment and the investors. If returns are good, investors are willing to maintain their investment in the company. However, if returns to investors are poor, the loop is broken.

* Investment abandons the industry.
* Bond ratings fall; replacement funds are expensive.
* R&D falters.
* Skilled workers and efficient plant production are compromised.

Most importantly the quality and timely delivery of goods to customers are endangered, and customers become less and less willing to support future sales. The business cycle becomes a vicious cycle - a death spiral - from which it becomes increasingly difficult to recover. Why does the government care? Because that distinguished defense company which is doing so well on a defense program may be going out of business undetected by the standard DOD Cost Schedule Control System Criteria (CSCSC)!

AN ILLUSTRATIVE CASE STUDY

McDonnell Douglas Corporation (MD) is principally engaged in the design, development and production of combat aircraft, transportation aircraft, and missiles, space and electronic systems. It is the prime contractor for the C-17, F/A-18 and a strong team member for the Navy's AX program. The company also owns a finance subsidiary, McDonnell Douglas Finance Corporation (MDFC). MD has been the largest U.S. defense prime contractor for the last five years, and is currently the smallest of the three primary, large commercial aircraft manufacturers worldwide. In 1991 58% of MD's revenues were derived from government contracts, and the balance of the revenues came from commercial sources.

Kynikos Associates, Ltd, a New York investment company, published a revealing financial analysis in May, 1992. Using data from both the government and commercial portions of MD enterprise, they focused on two primary, and related, issues:

1) MD's reported earnings, upon which investment decisions are usually made, are meaningless accounting entries (ie: the company has consistently experienced negative cash flow for some time)

2) A very strong argument can be made that the equity in MD is worthless based on the best-case value of the company's assets being offset by the amount of the company's stated, off-balance sheet and contingent liabilities.

The following is excerpted from the company's recent debt prospectus: "Further proposed significant reductions in defense spending and the U.S. Government's decision to emphasize weapons research over production may have a material impact on the company. The loss of a major program or a major reduction or stretch-out in one or more programs could have a material adverse impact on the company's future revenues and earnings."

The Kynikos report continued with the strategic analysis so common to the investment community and concluded:

" Specifically, the company is poorly capitalized, has had significant problems with many of its subcontractors, has very little credibility with those inside or outside the industry, has a history of tremendous cost overruns and technical problems on projects, and generally is considered to be poorly managed".

" We believe that MD is exceptionally aggressive from an accounting standpoint, especially relative to competitors in its industries and, thus, that its results (and, indeed, its stated assets and liabilities) have little correlation with the true economics of the company."

" ...the company has had huge negative cash flows for years. It is apparent that this "temporary" negative cash flow is permanent. What is so tremendously ominous is that MD claims that the MD-80 was significantly cash flow positive in 1991, that the MD-11 was cash flow positive by year-end, and that the mature defense programs are cash flow positive. In addition, the company has made massive cuts in its overhead, and, as noted earlier, in its R&D and capital spending as well. And yet, despite all of these claims....the company burned roughly $650 million in cash from ongoing operations last year!"

The analysis concludes with an ominous summation concerning the future viability of McDonnell Douglas;

" In sum, we can find no rational explanation why investors would want to own McDonnell Douglas shares at any price, and for that matter, why they would own the company's debt securities.....We find it unbelievable that investors buy these shares based

on reported earnings, and that sell-side analysts recommend this stock based on multiples of earnings, revenues or book value, since the company's reported earnings are so obviously overstated and its liabilities so materially understated."

" The 1991 McDonnell Douglas annual report is entitled "Turning the Corner", and pictures five airplanes turning up into the sky. We would agree with the title, but not with the direction of the airplanes....we believe that MD is headed for a hard landing. As a senior MD official said on a televised business show about six months ago..."If we don't get this Taiwan deal done, we're dead." We would agree, with one major inclusion. For the reasons outlined in this report, we believe that McDonnell Douglas is dead regardless of whether the Taiwan deal is done or not."

We can no longer hope that the "invisible hand" of the market place should determine our defense industrial posture. Whether or not the Kynikos Associates, Ltd report is universally accepted, this type of comprehensive strategic and financial perspective is not routinely available to defense policy-makers and program managers. It should be! Failure to evaluate the entire scope of a firm's business posture ignores potentially vital information which should be critically analyzed prior to competitive procurement and/or entering into long-term sole source relationships. Additionally, strategic analysis of defense firms reveals: their corporate cultures, their quality of their management, internal strengths and weaknesses, and evidence of their potential demise. Proper analysis can provide sufficient notice to undertake contingency planning for alternative sources should the primary source fail. Since we insist upon continuous

monitoring when investing our personal resources, should not the government's investments receive the same considerations?

RECOMMENDATIONS

An analysis of a firm's health calls for a comprehensive review of the organization's structure, operations, and culture. The review should be standardized across each defense industry segment, should incorporate a 5-year data history, and should be distributed on a limited need-to-know basis (classified, if necessary, to ensure privacy). The analysis consists of two broad categories:

* strategic audit
* performance analysis

The strategic audit is a type of management audit that takes a corporate-wide perspective and provides a comprehensive assessment of a corporation's strategic position. It considers external as well as internal factors and covers the key aspects of the strategic management process. It describes not only how objectives, strategies, and policies are formulated as long range decisions, but also how they are implemented, evaluated, and controlled by programs, budgets, and procedures. The audit is composed of the following interrelated segments:

* **Evaluation of a firm's current business success** in terms of:

a) Operating performance
   Balance sheet comparisons
   Ratio analysis
   - Liquidity ratios
   - Leverage ratios
   - Operating ratios
   - Coverage ratios
   - Bond ratings
   - Altman's Z-score model

b) Business philosophy
Mission objectives
Strategies
Policies

* **Examination and evaluation of a corporation's strategic managers** - its board of directors and top management.

* **Analysis of the external environment** to locate strategic factors that pose opportunities and threats.

* **Analysis of the internal corporate environment** to determine strategic strengths and weaknesses.

The strategic audit concept is commonly used by investment analysts and other evaluators of overall firm performance. Professional services from the financial industry would be engaged to provide a commercial perspective. Additionally, the Defense Logistics Agency's Defense Corporate Executive (DCE) program can provide valuable information on corporation-specific issues such as business issues, financial conditions and management systems.

The performance analysis applies specifically to performance on Defense contracts. The generic areas of interest include the following;

* **Program planning and control** - the processes used to manage and control program cost, schedule, performance and technical change. This area also includes the processes used to integrate issues to determine program and /or contract impact.

* **Product Definition and Design** - the processes used to transform requirements into a producible design and to support new production processes.

* **Product delivery** - the processes used to plan, schedule, fabricate, assemble, test, deliver and accept end items.

* **Product support** - the processes used to ensure adequate support after product delivery to the forces.

Grouping processes aids in determining which are complementary and which to target first for improvements, modification, or abandonment. Fundamental to this analysis is the determination of clearly defined and objectively determined performance metrics. The goal is to establish a "yardstick" by which similar firms in the same defense segment could be monitored. Unrepresentative negative trends, by a particular firm, would warrant further investigation. A proposed format for a strategic audit is provided as Appendix A.

THE END GAME

The approach proposed is predicated upon an unprecedented level of cooperation between Defense and industry. I believe that the current state of defense businesses warrants such effort. Regardless of the defense industrial policy which eventually evolves, critical technologies/capabilities will become highly concentrated in a few firms. These firms will attain the status of national assets depending upon their contributions to defense. Means to monitor their long-term viability as businesses will be essential. Additionally, other unusual, but complimentary, actions should be taken:

1) Regular meetings between key Wall Street experts, Department of Commerce officials, and Defense Acquisition Executives to discuss market views on defense industry and the impacts anticipated from legislation or regulation before it is implemented.

2) A "standing" committee composed of Chief Financial Officers from defense firms and appropriate Defense procurement officials to candidly discuss industry problems and concerns. The success of "controlled diversity" initiatives by defense firms into the commercial marketplace could be reviewed here.

3) Comprehensive education for military and civilian acquisition professionals, particularly Program Managers, in business practices, policies and techniques so that an understanding of what the macro-indicators of business mean once reported. Government program managers should universally be acquisition professionals chosen based upon what they know rather than who they know. Master Degrees in Business Administration would be preferable so that the government's program manager and the firm's program manager will command more equal levels of expertise.

****

The Defense/industry partnership which existed for so many years must get back to basics. It must emphasize face-to-face communication and discussion of all the results with all of the people. We must become obsessed with sharing information and preventing secrecy. Defense policy must discard reliance on free market mythology and substitute:

* intensive, active acquisition policy review by senior officials based upon a wholistic review of the policy consequences.
* solid business orientations.
* a high level of measurement and feedback.

I have proposed an approach to monitoring defense industrial health which incorporates the quantitative methods of financial analysis and process analysis, **and** the qualitative factors of corporate strategy, mission, culture and management style. Both approaches are essential to get the "Big Picture"; the Picture we must refocus lest our industrial base melt under the heavy touch of the Invisible Hand.

APPENDIX A

STRATEGIC AUDIT OF A CORPORATION

I CURRENT SITUATION

A. Performance

How is the corporation performing in terms of return on investment, overall market share, profitability trends, and earnings per share?

B. Strategic Posture

What are the corporation's current mission, objectives, strategies, and policies?

1. Are they clearly stated or are they merely implied from performance?
2. MISSION: What business(es) is the corporation in? Why?
3. OBJECTIVES: What are the corporate, business, and functional objectives? Are they consistent with each other, with the mission, and with the internal and external environments?
4. STRATEGIES: What strategy or mix of strategies is the corporation following? Are they consistent with each other, with the mission and objectives, and with the internal and external environments?
5. POLICIES: What are they? Are they consistent with each other, with the mission, objectives, and strategies, and with the internal and external environments?

II STRATEGIC MANAGERS

A. BOARD OF DIRECTORS

1. Who are they? Are they internal or external?
2. Do they own significant shares of stock?
3. Is the stock privately held or publicly traded?

4. What do they contribute to the corporation in terms of knowledge, skills, background, and connections?

5. How long have they served on the board?

6. What is their level of involvement in strategic management? Do they merely rubber-stamp top management's proposals or do they actively participate and suggest future directions?

B. TOP MANAGEMENT

1. What person or group constitutes top management?

2. What are top management's chief characteristics in terms of knowledge, skill, background, and style?

3. Has top management been responsible for the corporation's performance over the past few years?

4. Has it established a systematic approach to the formulation, implementation, and evaluation and control of strategic management?

5. What is its level of involvement in the strategic management process?

6. How well does top management interact with lower-level management?

7. How well does top management interact with the board of directors?

8. Is top management sufficiently skilled to cope with likely future challenges?

III EXTERNAL ENVIRONMENT: OPPORTUNITIES AND THREATS

A. Societal Environment

1. What general environmental factors among the socio-cultural, economic, political-legal, and technological forces are currently affecting both the corporation and the industries in which it competes? Which present current or future threats? Opportunities?

2. Which of these are currently the most important to the corporation and to the industries in which it competes? Which will be important in the future?

B. Task Environment

1. What forces in the immediate environment are currently affecting the level of competitive intensity within the industries in which the corporation offers products or services?
2. What key factors in the immediate environment are currently affecting the corporation? Which present current or future threats? Opportunities?
3. Which of these forces and factors are the most important at the present time? Which will be important in the future?

IV INTERNAL ENVIRONMENT: STRENGTHS AND WEAKNESSES

A. Corporate structure

1. How is the corporation structured at present? Is the decision-making authority centralized around one group or decentralized to many groups or units? Is it organized on the basis of functions, projects, geography, or some combination of these?
2. Is the structure clearly understood by everyone in the corporation?
3. Is the present structure consistent with current corporate objectives, strategies, policies, and programs?
4. In what ways does this structure compare with those of similar corporations.

B. Corporate Culture

1. Is there a well-defined or emerging culture composed of shared beliefs, expectation, and values?
2. Is the culture consistent with the current objectives, strategies, policies, and programs?

3. What is the culture's position on important issues facing the corporation (ie: productivity, quality, adaptability).

C. Corporate Resources

1. Finance

a) What are the corporation's current financial objectives, strategies, policies, and programs?

i) Are they clearly stated or merely implied from performance and/or budgets?

ii) Are they consistent with the corporation's mission, objectives, strategies, policies, and with internal and external environments?

b) How well is the corporation performing in terms of financial analysis? (Consider liquidity ratios, profitability ratios, activity ratios, leverage ratios, capitalization structure, and constant dollars).

i) What trends emerge from this analysis?

ii) Are there any significant differences when statements are calculated in constant versus reported dollars?

iii) What impact have these trends had on past performance and how will they affect future performance?

iv) Does this analysis support the corporation's past and pending strategic decisions?

c) How well does this corporations financial performance compare with that of similar corporations?

d) Are financial managers using accepted financial concepts and techniques to evaluate and improve current corporate and divisional performance? (Consider financial leverage, capital and ratio analysis).

e) What is the role of the financial manager in the strategic management process?

2) Research and Development (R&D)

a) What are the corporation's current R&D objectives, strategies, policies, and programs?

i) Are they clearly stated, or implied from performance or budget?

ii) Are they consistent with the corporation's mission, objectives, strategies, policies, and with internal and external environments?

iii) What is the role of technology in corporate performance?

iv) Is the mix of basic, applied, and engineering research appropriate given the corporate mission and strategies?

b) What return is the corporation receiving from its investment in R&D?

c) Is the corporation technologically competent?

d) How well does the corporation's investments in R&D compare with the investments of similar corporations?

e) What is the role of the R&D manager in the strategic planning process?

3. Operations (Manufacturing or Service)

a) What are the corporation's current manufacturing/service objectives, strategies, policies, and programs?

i) Are they clearly stated, or merely implied from performance and/or budgets?

ii) Are they consistent with the corporation's mission, objectives, strategies, policies, and with the internal and external environments?

b) What is the type and extent of operations capabilities of the corporation?

i) Manufacturing operation: Consider plant facilities, type of manufacturing system (continuous mass production or intermittent job shop), age and type of equipment, degree and role of automation and/or robotics, plant capacities and utilization, productivity ratings, availability and type of transportation.

ii) Service operation: Consider the service facilities, type of operations systems (continuous service over time or intermittent service over time), age and type of supporting equipment, degree and role of automation and/or use of mass communication devices, facility capacities and utilization rates, efficiency ratings of professional or service personnel.

c) Are facilities vulnerable to natural disasters, local or national strikes, reduction or limitation of resources from suppliers, substantial cost increases of materials, or regulation by government agencies?

d) Is operating leverage being used successfully with an appropriate mix of people and machines or support staff?

e) How well does the corporation perform relative to the other segment competitors? Consider costs per unit of labor, material, and overhead; downtime; inventory control management and/or scheduling of staff; production ratings; facility utilization percentages; and percentage of goals/milestones met.

i) What trends emerge from this analysis?

ii) What impact have these trends had on past performance and how will they affect future performance?

iii) Does this analysis support the corporation's past and pending strategic plan?

f) Are operations managers using appropriate concepts and techniques to evaluate and improve current performance? Consider cost systems, quality control and reliability systems, inventory control management, personnel scheduling,learning curves, safety programs, engineering programs that can improve efficiency.

g) What is the role of the operations manager in the strategic management process?

4. Human Resources Management (HRM)

a) What are the corporation's current HRM objectives, strategies, policies, and programs?

i) Are they clearly stated, or merely implied from performance and/or budgets?

ii) Are they consistent with the corporation's mission, objectives, strategies, policies, and with the internal and external environment?

b) How well is the corporation's HRM performing in terms of improving the fit between the individual employee and the job? Consider turnover, grievances, strikes, layoffs, employee training, and quality of work life.

i) What trends emerge from this analysis?

ii) What impacts have these trends had on past performance and how will they affect future performance?

iii) Does this analysis support the corporation's past and pending strategic decisions?

c) How does this corporation's HRM performance compare with that of similar companies or segment competitors?

d) Are HRM managers using appropriate concepts and techniques to evaluate and improve corporate performance? Consider the job analysis, performance appraisal systems, up-to-date job descriptions, training and development programs, attitude surveys, job design programs, quality of relationships with unions, and company-sponsored benefits such as child care and wellness programs.

e) What is the role of the HRM manager in the strategic management process?

5. Information Systems (IS)

a) What are the corporation's current IS objectives, strategies, policies, and programs?

i) Are they clearly stated, or merely implied from performance and/or budgets?

ii) Are they consistent with the corporation's mission, objectives, strategies, policies, and with internal and external environments?

b) How well is the corporation's IS performing in terms of providing a useful database, automating routine clerical operations, assisting managers in making routine decisions, and providing information necessary for strategic decisions?

i) What trends emerge from this analysis?

ii) What impact have these trends had on past performance and how will they affect future performance?

iii) Does this analysis support the corporation's past and pending strategic decisions?

c) How does this corporation's IS performance and stage of development compare with that of similar corporations?

d) Are IS managers using appropriate concepts and techniques to evaluate and improve corporate performance? Do they know how to build and manage a complex data-base, conduct system analyses, and implement interactive decision-support systems?

e) What is the role of the IS manager in the strategic management process?

V. Analysis of Strategic Factors

A. What are the key internal and external factors that strongly affect the corporation's present and future performance?

1. What have been the key historical strategic factors for this corporation?
2. What are the key short-term (0-1 year) strategic factors for this corporation?
3. What are the key intermediate-term (1-3 years) strategic factors for this corporation?
4. What are the key long-term (3-10 year) strategic factors for this corporation?

B. Are the current mission and objectives appropriate in light of the key strategic factors and problems?

VI. Strategic Alternatives

A. Can the current or revised objectives be met by the simple, more careful implementation of those strategies presently in use?

B. What are the major feasible alternative strategies available to this corporation? What are the pros and cons of each? Can scenarios be developed and agreed upon?

1. Consider stability, growth, and retrenchment as corporate strategies.
2. Consider any functional strategic alternatives that might be needed for reinforcement of an important corporate or business strategic alternative.

VII. Evaluation and Control

A. Is the current information system capable of providing sufficient feedback on business activities and performance?

1. Can performance results be pinpointed by area, unit, project, or function?
2. Is the information timely?

B. Are adequate control measures in place to ensure conformance with the strategic plan?

1. Are appropriate standards and measures being used?
2. Are reward systems capable of recognizing and rewarding good performance?

BIBLIOGRAPHY

Air Force Association. Lifeline in Danger. Arlington:AEF, 1988.

Anders, William A. "Rationalizing America's Defense Industry" Defense Week 12th Annual Conference, 30 October 1991.

Association of the United States Army. A New Strategy for Defense Acquisition. September, 1992.

Brigham, Eugene F. Financial Management. New York: Dryden Press, 1988.

Bluestone, Barry and Bennett Harrison. The Deindustrialization of America. New York: Basic Books, 1991.

Clem, Harold J. The United States in The World Economy. Washington: NDU Press, 1984.

Congress of the United States. Office of Technology Assessment. Building Future Security. OTA-ISC-530. Washington: June, 1992.

Congress of the United States. Office of Technology Assessment. Redesigning Defense. OTA-ISC-500. Washington: July, 1991.

Friedlob, George T. and Franklin Plewa, JR. Financial and Business Statements. New York:Barrons, 1991.

Gansler, Jaques S. Affording Defense. The MIT Press, 1991.

Kearns, Kevin L. and Gregory Stanke. "Needed: A Serious U.S. Economic Strategy." The Christian Science Monitor 4 June 1992: 19.

Kynikos Associates,LTD. "McDonnell Douglas Corporation Heading For A Hard Landing." New York: May 27, 1992.

MAC Group. "The Impact on Defense Industrial Capability of Changes in Procurement and Tax Policy, 1984-1987." Washington:Defense Press.

National Science Board. Committee on Industrial Support for R&D. The Competitive Strength of U.S. Industrial Science and Technology: Strategic Issues. NSB-92-138. Washington: August, 1992.

Peterson, H.Craig and W.Cris Lewis. Managerial Economics New York: Macmillan, 1990

USAF(FM). "Financial Analysis of the Aerospace/Defense Industry." 1992