(2)

A SERIES OF

DESIGNATED PAPERS

The Non-Thesis Option

Presented to

the Faculty of the Department of Technology

East Tennessee State University

In Partial Fulfillment

of the Requirements for the Degree

Master of Science in Technology

---

by

Christopher J. Addison

August 1992

TABLE OF CONTENTS

TOTAL QUALITY MANAGEMENT

IN THE

AEROSPACE DEFENSE INDUSTRY

A Designated Paper

Presented to

the Faculty of the Department of Technology

East Tennessee State University

In Partial Fulfillment of

the Requirements in Operations Management

for the Degree

Master of Science in Technology

---

by

Christopher J. Addison

August 1992

THE STATUS OF IMPLEMENTATION OF TOTAL QUALITY MANAGEMENT IN THE AEROSPACE DEFENSE INDUSTRY.

Purpose. An assessment of progress to date of firms within the Aerospace Defense Industry in implementing successful Total Quality Management programs.

Procedure. This assessment was based on research material available through the East Tennessee State University Library.

Conclusion. Substantial progress has been made in implementing TQM within Aerospace Defense firms, but it is still too early to tell whether or not it will pay-off. TQM is a long-run corporate strategy that takes time to produce results. The initial results are very positive, and it appears that these firms are headed in the right direction. Further investigation is required in the future to determine the final outcome.

.....

This paper was prepared and accepted as a fulfillment of the requirement for a research paper in the designated course Operations Management under the non-thesis option.

DR. Kerry Swinehart

TABLE OF CONTENTS

CHAPTER 1

Introduction

Purpose of the Study

The purpose of this study was to examine and assess the progress of firms in the Aerospace Defense Industry in implementing Total Quality Management (TQM) as part of their corporate strategy. The major focus of the study was the primary corporations contracting directly with the Department of Defense (DOD). However, subcontractors were reviewed to a limited extent because of their direct connection to the success and performance of the primary contractors. Specific areas addressed in the study included:

1. Definition of key elements consistently found in successful TQM programs.

2. Progress in implementing TQM in the Aerospace Defense Industry.

3. Effects of the Malcolm Baldrige National Quality Award on the type of TQM program implemented.

Significance of the Study

Quality of products has become a major concern of all U. S. manufacturing firms and is an essential part of the corporate strategy decision-making process. The competitive marketplace has developed into a worldwide,

global market economy in which sophisticated customers are no longer willing to accept poor quality. Long-term corporate survival may very well depend on each firm's ability to adapt to customer quality requirements and improve quality through implementation of a successful TQM program as part of their corporate strategy. ("Aerospace Firms", 1990)

Product quality was essentially ignored in the U.S. for a long time, which allowed foreign competitors to gain some significant advantages over their U.S. counterparts. To regain their competitiveness, U.S. firms realized in the 1980s they could no longer ignore quality. In the early 1980s, the phrase Total Quality Management was coined, and the Federal Government mandated implementation by all defense contractors because of their concern for poor quality control within the Aerospace Defense Industry. ("Management Practices", 1991)

However, the importance of TQM to the Aerospace Defense Industry may prove to be far greater than this mandated program requirement. The current trend to reduce defense spending has forced firms in the Aerospace Defense Industry to seek commercial market

opportunities, which in turn has refocused their attention on quality issues in order to allow them to compete in worldwide aerospace markets. Survival of firms in the defense industry has become critically dependent upon their ability to adapt to a commercial market environment, in which high product quality is a must, given the expected future decreases in the defense budget. A key strategy for making the required transition to high quality products has been TQM. ("Aerospace Firms", 1990)

The concern for quality improvement goes far beyond the ability to compete in world markets. The Aerospace Defense Industry has come under much greater scrutiny in recent years, due to increased public awareness of problems thanks to media coverage. As taxpayers, most Americans were outraged at the perceived poor quality of products their tax dollars were spent on. With the budget cuts, DOD was under more intense pressure than ever to spend the available funds wisely; and therefore, contractors could expect quality to become a central issue of future contracts, since the ability and willingness to pay for poor quality no longer existed. ("Aerospace Firms", 1990)

The concern for quality was more than just a monetary issue to taxpayers. The sons and daughters of the American taxpayers who make up our armed forces were expected to put their life on the line to defend our national interests worldwide. The American public expected them to be well equipped, with the most technically sophisticated weaponry in the world. They also expected this equipment to be safe to operate, and would not accept the unnecessary loss of American lives because of poor quality products that do not meet health and safety standards.

The impact of the Aerospace Defense Industry in this country is far more important than merely its influence on individual firms, jobs, and economic factors. The central focus of a strong Aerospace Defense Industry must take into account the national security implications of the U.S. For this country to remain a world leader, and protect its national interests worldwide, a strong Aerospace Defense Industry is a must. There was already cause for alarm in this country over the health of our industrial base. At present, there are numerous key parts and components of our weapon systems that are only available from

foreign industries. In a time of crisis, the possible loss of supply of these parts could determine our fate. (Smith, 1989)

Definitions, Assumptions, and Limitations

Definitions. The study of TQM proved to be a difficult task due to the lack of universally accepted definitions of key terms and elements of the process. The term Total Quality Management is widely used to describe restructured management practices within organizations, even though various programs are vastly different. In fact, a key element to succeed in implementation of a TQM program is to tailor the program to the individual corporation. ("Management Practices", 1991)

Given the difficulty in defining TQM, development of acceptable, shared meanings for key terms was critical to the understanding and utility of this study. Fortunately in reported cases of successful TQM programs there were a number of elements that were repeatedly found, and have come to be considered essential elements of successful TQM implementation. This study focused on those commonalities, which are addressed in Chapter 2. (Juran, 1991)

The following definitions are given to provide an understanding as to how these general terms are used in the context of this study:

Quality. The natural or essential character of something is the given dictionary definition of quality. This definition was to general to be useful, however. Quality in manufacturing was generally defined as the meeting of technical specifications and the satisfying of customer requirements. For purposes of this study, quality was considered to be the meeting of contract requirements exactly, which included satisfying all customer requirements and meeting the promised delivery schedule. Equally important to this definition was that quality was based on the customer's perception of the firm's performance instead of just strictly meeting technical specifications. Under this definition, it was possible to meet all technical specifications, and still be perceived as having poor quality if the customer's performance expectations were not met. ("Management Practices", 1991)

Total Quality Management. Total Quality Management is a new approach to the act of management that seeks to improve product quality and increase

customer satisfaction by restructuring traditional management frameworks. The application is unique to each individual organization and should be tailored to their specific requirements. A central theme of Total Quality Management is that every member of the organization is responsible for quality and is involved and committed to improving quality. ("Management Practices", 1991)

Continuous Improvement. A fundamental part of TQM which arose from the belief that all business operations and activities could constantly be improved by eliminating resistance to change, and creating clear goals for improvement. ("Management Practices", 1991)

Malcolm Baldrige National Quality Award. Created August 20, 1987 by public law, this award recognizes companies for successful implementation of TQM programs. The criteria for the award has served as a tool for implementing and evaluating the effectiveness of TQM programs. ("Management Practices", 1991)

Aerospace Defense Industry. The Aerospace Defense Industry consists of firms in manufacturing, whose primary business is provided by defense contracts for military aircraft, aeronautical equipment, or related

items. This study focused on companies listed in Value Line Investment Survey under the Aerospace Defense Industry category, as listed in the Appendix.

Assumptions. The following assumptions were made in conducting this study:

a. The East Tennessee State University Library served as the primary source of literature, and was assumed to have been an adequate source of reference material to cover this topic.

b. Even though there were variations in the specific TQM program of various firms, the differences were assumed insignificant for classification of firms as having reported successful implementation of TQM, compared to those who have not reported success.

c. A properly implemented TQM program that was successful resulted in significant product quality improvements, and cost reductions, which could not be verified independently. The information printed on successful companies in implementing TQM was based on their self-assessments, and was assumed to be accurate and unbiased.

Limitations. The following limitations must be taken into account for assessing the validity and

usefulness of this study:

a. Quality evaluation data in the Aerospace Defense Industry was not openly available to the general public. The function of quality evaluation was performed internally by Aerospace Defense firms, and was considered competition sensitive proprietary data. The ability to independently evaluate quality improvement based on successful implementation of TQM proved to be an impossible task that limited the scope of this study.

b. The research material available was limited to success stories on TQM implementation. Among all the material found and reviewed, there were no cases of unsuccessful TQM implementation. Therefore, the ability to assess the results of poorly implemented TQM programs, to assess the negative impacts of TQM, and to learn from the mistakes of others during implementation and execution of their TQM program was quite limited.

In addition to the literature reviewed, it would have been helpful to have had specific information on the effectiveness of each individual company's TQM program, and an independent evaluation of the quality of their products. Firms in general were unwilling to

release this information, especially in those cases in which negative information could give competitors an edge. Firms willing to provide data tend to bias it to the positive side, or refuse to provide full disclosure since negative data could damage the firm's image.

Surprisingly, product quality evaluation was largely an internal function of firms within the Aerospace Defense Industry. Independent evaluations of product quality, from organizations such as the American Society for Quality Control, were not being done. Quality information on commercially marketed products, from sources such as Consumer Reports, was not equally available within the Aerospace Defense Industry, therefore. The literature review reinforced this fact, since all the articles reviewing specific firms were success stories. Cases in which TQM has not worked well, was not properly implemented, or just fell short of expectations were not documented in the available literature, which is a severe limitation on the validity of this study.

The literature reviewed represented one side of the story (favoring TQM), while not addressing the other side of the issue. It was reasonable to assume

that some firms have failed in implementing TQM, or experienced some declines in corporate performance, but this was not presented in the research articles. It was somewhat understandable that companies would not be willing to share these negative experiences; but, this lack of information hinders the learning process and creates a skewed perception of TQM.

Equally disturbing in the literature review was the fact that TQM success stories were largely based on company provided data, with no empirical evidence or statistical proof provided. Firms were understandably unwilling to provide negative data on themselves. In their assessment of their TQM program it was probable that they only told part of the story (the positive side), or that their assessment was biased. Without empirical evidence to support or refute claims, it was impossible to assess the data validity.

Methodology

The method used for conducting this study involved review of all available literature to provide an assessment of the status of TQM within the Aerospace Defense Industry. The assessment focused on the existing conditions within the industry, the

relationship between corporate performance and implementation of TQM, opinions held about TQM within the industry, specific processes being used, and trends toward implementation of specific TQM elements. As previously stated, the review of literature was limited to sources available through the East Tennessee State University Library. The sources available were assumed adequate for a thorough assessment of this topic; however, the literature reviewed was not totally inclusive of all existing material on the subject matter. The body of literature reviewed was deemed representative of the total population of material written on this subject matter.

The sources of literature used for this study consisted of government publications, trade journals, and quality association publications. In addition, Value Line Investment Survey was used to review profitability of Aerospace Defense firms. The East Tennessee State University library provided all of the material used in this study, except one report obtained directly from the government.

This government publication, which proved most useful in this study, was a research report from the

U.S. General Accounting Office (GAO) entitled Management Practices: U.S. Companies Improve Performance Through Quality Efforts. This study detailed research conducted by GAO on 20 U.S. companies who scored high on the Malcolm Baldrige National Quality Award competition. The information provided was not related directly to the Aerospace Defense Industry; however, it provided a great deal of information on TQM in general, and its potential benefits.

Another major source of information used was trade publication articles, such as Aviation Week & Space Technology, Ceramic Industry, and Welding Design & Fabrication. These publications provided a good source of information on some specific firms within particular industries, and general information on trends within the Aerospace Defense Industry. Articles were found that discussed the TQM programs of major contractors, as well as, subcontractors. Information for these articles was obtained directly from the company being reviewed in most cases.

The final source of information used consisted of publications from quality related organizations and

associations. These sources provided information on the industry and TQM in general. Articles reviewed were based on presentations made at quality forums, or were routinely published feature articles of these organizations. The data was generally from independent sources, as opposed to company furnished information.

The literature reviewed for this study was considered adequate, but is by no means all inclusive. All available data was reviewed, but there is a wealth of other articles and publications on the market that were not available due to time and place constraints.

CHAPTER 2

Review of Literature

Background

Going back in history, the U.S. government first recognized the importance of quality control in the 1950s, when they introduced military specifications, which established "acceptable levels of quality". This notion recognized it was virtually impossible to mass produce items with zero defects, and therefore set acceptable levels of defects. The intended impact was to reduce the number of defects in production; however, the reverse effect occurred because manufacturers could justify their defects with this notion of things not being perfect all the time. Quality became far less important, and was delegated to a quality department since it was statistically impossible to make perfect products. American management in general ignored quality. They were content spending billions of dollars on warranty and rework, and forced government agencies to waste billions more on quality inspections and testing. (Crosby, 1991)

Then foreign competitors suddenly started providing products that met their advertised requirements exactly. The initial reaction was to cry

foul, followed by quick fix solutions, such as quality circles, and finally a renewed seriousness about the importance of quality. (Crosby, 1991)

The Federal Government also recognized the threat of foreign competition during the late 1970s and early 1980s. Quality control problems were not formally recognized in the Aerospace Defense Industry until 1987. However, following an intensive review by the Air Force and the Defense Logistics Agency (DLA) from 1985 through 1986 a variety of problems were found. These problems included a lack of records of mandatory quality control inspections, numerous unsatisfactory ratings on quality assurance inspections with no corrective action taken, total lack of quality control for subcontractor procured materials, and an estimated 10 to 30% of the annual defense procurement budget spent on defective items. ("Defense Dept", 1987)

As a result of their findings, and recognition of the quality problems in Aerospace Defense contracting, the Federal Government mandated all defense contractors to implement a Total Quality Management program subject to their inspection and approval. The specific program elements were left up to each firm's discretion because

of the recognition of the importance of tailoring the program to each individual company's operations. (Smith, 1989)

Allowing firms to structure and implement their own programs appeared appropriate, but in reality left them free to do nothing if they were satisfied with their current operations. The Federal Government lacked the expertise needed to inspect and approve TQM programs, so as long as a firm had a plan to address quality control, and was following generally accepted quality control techniques, nothing changed. Aerospace Defense firms eventually all had a program they called TQM to meet the federal mandate, but very few of the programs were actually different from past practices. (Smith, 1989)

Some firms actually adopted TQM in response to dissatisfaction with their current operations, rather than the mandate. As time passed, more firms adopted TQM in response to the need to compete in the global commercial airline industry, or in response to their dissatisfaction with operations. However, the federal mandate for TQM had very little influence on firms deciding to implement TQM. In fact, the general

feeling within the industry was that the government's contracting process inhibited successful implementation of a true TQM program, and therefore, they were neither serious nor supportive of TQM. (Smith, 1989)

Key Elements of TQM

There was no hard, fast definition of what a TQM program is, or the key elements that were a mandatory part of it. Many firms fell into the trap of looking for a patent, cookbook recipe for overnight success in implementing TQM. It was not quite that easy to implement TQM. TQM must be tailored to each specific firm it is applied to. There are many different alternative processes and methods for implementation; therefore, individual firms must evaluate their situation, and pick program alternatives that best suit their needs. ("Aerospace Firms", 1990)

Even though there was no universally accepted definition of the exact elements required of a TQM program, there were a number of common elements generally found in successful programs. These specific principles demand attention because of there commonality to successful programs. The starting point for using TQM must be education on the fundamental

elements to provide the foundation of knowledge needed to build a program tailored to the firm's needs. ("Aerospace Firms", 1990)

The principal elements that needed to be considered were as follows:

1. Top management must be committed totally to the effort. The implementation process was tough, because it required major changes throughout the organization. Those changes took substantial time, resources, and effort to have an effect. Top management must be willing to take the required leadership role to see the changes through, and demonstrate the perseverance to stick with the program through the hard times in order to gain the long-term benefits. ("Aerospace Firms", 1990)

2. The TQM strategy and goals must be part of the corporate and business strategies of the firm, and must be promoted at every echelon of the organization. TQM required a major cultural change in the organization in which everyone, from top management to the lowest line level employees, had to work together as a team. The concept of teamwork at every level of the organization was vital to the achievement of a shared commitment to

continuous quality improvement throughout the entire firm. ("Management Practices", 1991)

3. Decision-making authority must be delegated to the lowest possible echelons of the firm to get the employees involved and committed to quality improvement. The major source of resistance to this change came from middle-management, since they were the ones forced to give up their power. In fact, firms that were successful in implementing TQM normally flatten their organizational structure due to reduced need for middle-managers. The idea was to give the employees the task to be accomplished, provide them the necessary resources, and let them decide the best way to do it. This provided them the opportunity to use their skills, education, experience, and creativity to the fullest extent. The employees were given constant feedback on their performance, held responsible for failures, and rewarded for successes. The desired result was greater pride in workmanship, greater commitment to making their ideas work since they have ownership for them, and improved employee-management relationships. ("Aerospace Firms", 1990)

4. TQM must be maintained for an indefinite period of time. Unlike other programs, TQM was not a process that could be implemented and left to run on its own once it was in place. TQM places a great burden on the firm to sustain the effort indefinitely. If the process was implemented and ignored, it quickly faded away as another fad program that management was never really committed to or serious about. TQM is an ongoing process of continuous improvement that must be supported to maintain its momentum. (Juran, 1991)

5. TQM required a strong infrastructure of support to succeed. The commitment of resources to support the implementation and sustainment of the TQM program was a must if the firm expected to reap the benefits of the program. Resources must be dedicated to training and education of the workforce initially to get the program started. Productivity must be given lower priority, at least initially, because employees are taken away from production for training, production processes must be changed to improve quality, and workers are given the authority to stop production when quality problems are detected. The management

structure must be prepared to handle the numerous changes to the way the firm used to do business, which requires more extensive coordination among different operations, and the firm's suppliers. The bottomline was that there were a lot of short-term setbacks required for the long-term benefits to be realized. (Juran, 1991)

6. The central focus of the firm must be meeting customer requirements on-time. As already discussed, productivity could no longer be the central focus of the firm. The number one concern had to be producing quality products that met the needs of the customer. In this case, the customer may be the next stage of the assembly process that uses the part in putting together the final product. The key point was that every single operation has a customer, either inside or outside the firm, and the focus of that operation must be to both identify and satisfy the customers needs. ("Management Practices", 1991)

J. M. Juran (1991), a highly regarded international quality expert, asserted that to compete in a global market economy American firms must adopt TQM strategies capable of producing "world-class

quality". Among Juran's imperatives were the concepts of "stretch goals and benchmarking". Stretch goals referred to tenfold quality improvement and fourfold reliability improvement, in a period of four years, while reducing the product development cycle by 12 months. The typical reaction to stretch goals was that they were impossible to achieve. Juran used benchmarking to prove that they are not impossible to achieve. Benchmarking, used by the Xerox Corporation, is a method of evaluating progress toward the achievement of stretch goals, through comparison with firms who succeeded in meeting these goals, at comparable points in the cycle. Juran stated that change must occur at a revolutionary pace. He cited as an example a firm that implemented over 200,000 changes in one year. Change at this pace put the firm under a tremendous burden, which required intensive management effort to coordinate when and what to change. The changes must encompass every operation and aspect of the business as well, and not just the production processes. The concepts of quality and continuous improvement must be applied equally to sales, marketing, purchasing, etc. (Juran, 1991)

Juran also introduced and emphasized the importance of creating self-supervising worker teams. Under this concept, employees were organized into teams, trained as teams, assigned team projects, and given full responsibility for executing the projects. The team was evaluated as a unit based on their performance and results. The performance evaluation was tied to continuous improvement of product quality by the team, which was part of their job description. (Juran, 1991)

Other key points made by Juran included the need to remove barriers between planning and execution, maximizing worker creativity and skills, and long-term commitment (he suggested it typically takes six years to achieve world-class quality). Despite the enormous effort required, the long-term benefits gained by the successful use of TQM were worth it. Benefits achieved included huge reductions in customer response time, far fewer defective items produced, doubling productivity, major cost reductions, greater customer satisfaction and loyalty, and better worker relations. (Juran, 1991)

TQM Progress in the Defense Industry

Major firms in the Aerospace Defense Industry that were reported as successful in implementation of TQM by Aviation Week & Space Technology (1990) included:

1. McDonnel Douglas
2. Martin-Marietta
3. General Dynamics
4. Hughes Aircraft
5. Aerojet
6. Boeing
7. Litton
8. Lockheed
9. Northup
10. Rockwell
11. TRW

For these firms, TQM was implemented as a survival strategy in the face of the shrinking defense budget. The reliance on defense industry contracts was considered an inappropriate strategy for long-term survival and profitability; therefore, each of these firms took the actions they deemed necessary to become competitive in the commercial airline manufacturing industry. The federal mandate to implement TQM reportedly had very little to do with their decision to implement TQM, the type of program they implemented, or their timetable for implementation. ("Aerospace Suppliers", 1990)

In fact, most of these firms voiced their concern for roadblocks the Federal Government contracting process posed to successful implementation of TQM. The

DOD contracting process is still structured to award contracts based primarily on lowest cost, and ability to meet the program schedule. Contracts are still written in a manner that tells the contractor not only what to produce, but how to produce it. Regulations on fair and open competition prevent award of long-term, multi-year contracts, although TQM encourages long-term customer-supplier relationships. The impact of these factors is to add costs without adding value to the process. (Frank, 1990)

Irrespective of their reasons for implementing TQM, DOD should be pleased with the progress to date of the TQM programs within these firms. As a result, the number of rejects had declined, backorders were greatly reduced, there was a significant increase in on-time deliveries, and cost reduction benefits were passed on via the cost-plus type contracts. DOD, despite their failure to assist with TQM implementation and provide a conducive environment to meet their mandate, could be said to have prospered thanks to the initiative of these companies. Of course, these companies prospered as well, and did not take action solely to benefit DOD. ("Aerospace Suppliers", 1990)

Even with the federal mandate, not all firms had truly implemented TQM, or had the success cited. Some firms rejected TQM because they were satisfied with their current operations. Others had TQM programs on paper to satisfy federal requirements, but lacked the commitment or desire to implement the program. Still others followed the Baldrige Award criteria blindly without tailoring a program to their specific company. There were a multitude of other reasons also; but, the fact is not all firms embraced TQM as their key to survival. ("Aerospace Suppliers", 1990)

Evaluating the decision of firms not to undertake TQM was virtually an impossible task at this time. The fact that quality evaluation and management practices are internal issues, not subject to public scrutiny, means only time will tell whether or not they made the right choice. A review of Value Line Investment Survey corporate reports for Aerospace Defense Industry firms from 1986 to 1990 revealed no significant difference in profitability trends (return on investment and profit margin) for firms reporting successful implementation of TQM programs, as opposed to those who had not reported such success. The fact that TQM was a long-

term strategy means it may take quite a while longer to prove its merit.

The following tables can be used to compare the net profit margin for seven firms who reported successful implementation of TQM, and seven firms who had not reported such success, over the past five years. (Net profit margin was chosen for comparison over return on investment because it was more sensitive to changes in cost of goods sold that should be reduced by TQM.)

TABLE 1

Net Profit Margin Successful TQM Companies[a]

Company	1986	1987	1988	1989	1990
Boeing	4.1%	3.1%	3.6%	3.3%	4.8%
General Dynamics	4.0%	3.8%	3.1%	2.9%	NA
Lockheed	4.0%	3.9%	3.6%	0.1%	3.4%
Martin Marietta	3.9%	4.5%	3.9%	5.3%	5.1%
McDonnell Douglas	2.0%	2.2%	2.0%	NA	NA
Northrop	0.7%	1.6%	NA	NA	2.6%
Rockwell	5.0%	5.2%	5.1%	5.0%	5.0%
Average	3.4%	3.5%	3.6%	3.3%	4.2%

[a]Adapted from Value Line Investment Survey (1991).

TABLE 2

Net Profit Margin non-TQM Companies[a]

Company	1986	1987	1988	1989	1990
E-Systems	5.4%	4.9%	5.1%	4.6%	5.2%
Grumman	2.2%	0.8%	2.1%	1.9%	2.1%
Loral	8.3%	5.2%	5.1%	6.6%	4.2%
Raytheon	5.4%	5.8%	6.0%	6.0%	6.0%
Sundstrand	3.2%	2.5%	NA	6.9%	7.0%
Thiokol	4.6%	3.7%	4.0%	3.0%	3.5%
United Ind.	NA	4.8%	5.4%	5.2%	3.7%
Average	4.9%	4.0%	4.6%	4.9%	4.5%

[a]Adapted from Value Line Investment Survey (1991).

The magnitude of the net profit margin was not of interest, but the trend was. Firms with successful TQM programs should have shown a greater positive growth trend in net profit margin. In actuality there was very little difference in trend, perhaps due to the long-term nature of TQM that makes it slow in yielding benefits, or possibly profitability was effected more by the level of defense spending than performance.

Of equal importance to prime contractors was the status of TQM programs in Aerospace Defense Industry subcontractor firms. Primary defense contractors rely heavily upon subcontractors for supply of component parts to meet their contract requirements. In order to meet contract specifications, the parts they receive from their suppliers must be of high quality as well. To that end, firms such as Boeing have committed to assisting their suppliers with training and other resources in cases in which the supplier was to small to undertake TQM on their own. ("Aerospace Suppliers", 1990) The State of California was also helping small Aerospace Defense subcontractors implement TQM by providing training and resources. California estimated that 30% of their manufacturing jobs were tied to the Aerospace Defense Industry, and believed TQM was essential to the survival of these firms. Their support was supplemented by DOD, the United Auto Workers Union, and major firms such as Aerojet, Boeing, General Dynamics, Hughes, Litton, Lockheed, McDonnell Douglas, Northrop, Rockwell, and TRW. (Allen, 1990)

Like the primary Aerospace Defense Contractors, the TQM success stories for subcontractors were

plentiful. Norton reported their TQM program had made the company more dynamic, responsive to customers, creative, and increased initiative at all levels to improve quality. (Randall, 1990) Custom Craft reported reduction of more than half of their nonconformities, over half of their deficiencies, and more than an 85% reduction in inspection time thanks to their TQM program. (Allen, 1990) Ver-Val Enterprises reported growth from 25 to 270 employees, savings of 1.2 million dollars in one year, improved purchasing control, improved communication, tightened inventory control, and 40% sales growth as a result of their TQM program. (Brosilow, 1990) The list goes on, pointing out the importance of TQM regardless of size and position in the industry. In fact, the success of the primary contractors was undeniably linked to the success of their subcontractor suppliers. However, Shrontz (1990) pointed out that it is hard to get firms interested in TQM or changing their operations when they perceive everything is going great.

Malcolm Baldrige Award Effects

The Malcolm Baldrige National Quality award was instituted in an attempt to get American firms

refocused on product quality, and increase interest in product quality education. The purpose of the award was to recognize companies that succeeded in implementing Total Quality Management systems. The award was presented to firm's annually in three categories:

1. Small business enterprises.
2. Large manufacturing firms.
3. Service industries.

A maximum of two companies per category are recognized. ("Management Practices", 1991)

The criteria for the award evolved into a tool for implementing and evaluating TQM programs. In 1990 over 180,000 applications were requested by corporations, mostly for use in implementing TQM programs, evaluating their current TQM program, or educating employees on TQM. Industry in general has accepted the Baldrige criteria as a method to improve TQM knowledge, and as a tool for implementing a TQM program. ("Management Practices", 1991)

The Baldrige award has succeeded in generating renewed interest in product quality. The award alone was not credited with the renewed interest in TQM, since foreign competition played a key role as well;

but, the award definitely played a significant role. The merits and effects of the award are highly debated among experts, so while it played a significant role, the question remained whether or not the positive impacts outweighed the negative influences.

Phillip B. Crosby (1991), a leading expert on quality management, harshly criticized the Baldrige award as damaging the TQM movement in America. The key points of his criticism included the use of the criteria as a cookbook recipe for TQM implementation, focus on the process instead of the intended function of quality improvement, the use of self-nominations rather than customer nominations, and the criteria are focused more on the process than on satisfying customers. Crosby stated that his assessment of the award was that it had hindered, rather then helped, American firms in their attempts to implement TQM programs. (Crosby, 1991)

Chief among Crosby's concerns was that firms were led astray in focusing on the process, instead of the goal. He does not argue the point that past winners of the award were successful; but, that the reason for the success was not the Baldrige criteria. Crosby feels

firms were misled to believe the success was based on the criteria. The success of the firms was based on management commitment to satisfying customer requirements, not focusing on processes. (Crosby, 1991)

Crosby asserted that the negative impact of the award could be devastating to a firm that exerts tremendous effort to meet the criteria, only to find their product quality has not improved. Without the commitment to change to a quality culture as a way of life, Crosby predicted a firm would experience a major disappointment in results, loss of enthusiasm, and a major setback in improving quality. (Crosby, 1991)

Finally, Crosby attacked the self-nomination process, and the complexity of the application process, The true judge of product quality must be the customer, and that is who should make the nominations. The process should be simplified to allow customers to nominate their suppliers based on their number of complaints, number of returns, and the price of nonconformance compared to what it used to be. The data requirements of the current process are so complex that most firms did not bother to compete due to the time, effort, and resources required. (Crosby, 1991)

In response to Crosby's criticism, Curt Reimann (1991), head of the Baldrige award program, defended the award's validity. Reimann stated that the award criteria spoke for themselves, as he addressed Crosby's criticism point by point. He used a copy of the award application packet to defend his position, citing the definitions of terms, criteria, and processes as stated in the packet. Reimann argued the criteria were not merely a set of procedures, but an evaluation process for the results achieved by the firm. The central focus of the evaluation was improved customer satisfaction through quality improvement at reduced costs. Reimann felt that Crosby's attack on the award was an unjustified misunderstanding of the criteria. Crosby refused to respond further to Reimann's defense. (Reimann, 1991)

CHAPTER 3

Summary Findings and Conclusions

Elements Needed to Implement TQM

Based on the findings of this study, there are certain elements of TQM that are mandatory requirements for a program to succeed, both in implementation and execution. These elements were listed in Section B of Chapter 2 and can be summarized as follows:

1. Management commitment, from the CEO to the lowest line-manager, was mandatory, and it must be long-term. Anything less than 100% commitment to the program by management sent employees the message they were not serious about the required changes, and doomed the program to failure. Management support of the program must be highly visible to every employee throughout the organization, as well.

2. TQM is not a quick fix, recipe type program that can be implemented and left to run on its own. The program must be tailored to the individual firm and constantly nurtured. With TQM change becomes a normal, routine way of life in the firm as part of a process of continuous improvement.

3. TQM must be part of the corporate strategy at the CEO level and the business strategy of each section

of the firm. The TQM strategy becomes incorporated into job descriptions requiring evaluation of employees based on their contributions to quality improvement, as well as, team and section evaluations.

4. TQM requires a total cultural change within the organization. Every member of the organization has to change their mindset. The focus must be on quality and satisfying the customer, instead of productivity quotas and short-term profit maximization. Decision-making authority must be delegated down to line-employees who have the greatest impact on quality anyway.

5. It takes a lot of hard work to implement and succeed with a TQM approach. Management must be prepared to devote a lot of time to being visible at the work-site, and spend extensive amounts of time on planning and coordinating changes mandated by the continuous improvement process. Employees must be equally willing to put in the extra work and effort required to make the changes. It has to be a total team effort.

There are two vastly different approaches to implementing TQM. Juran (1991) argued that TQM

required change at a revolutionary pace, while others recommended a slow, cautious approach. ("Aerospace Firms", 1990) It appeared the answer was to do both. In the initial stages of planning, the firm should go slow in developing the program tailored to fit their needs, and getting the workforce geared up through education. The next step was to run a pilot program with a particular section or operation to work the bugs out. Once the program was proven to be well tailored to the needs of the company and the workforce was well educated, it was time to consider using the plan to change at a revolutionary pace to expand the TQM program throughout the entire organization.

Status of TQM in the Defense Industry

It can be safely concluded that TQM is a viable corporate strategy, which has demonstrated its utility to the Aerospace Defense Industry. The number of firms that implemented TQM, both inside and outside this industry, substantiate its utility. The successes reported may be exaggerated or biased, since the bulk of the information was provided by subject firms, but the frequency of reported successes leads to the conclusion that TQM works when properly implemented.

As for the Aerospace Defense Industry in general, it was apparent that while a number of firms succeeded in implementing TQM, others were well behind in their efforts. The federal mandate for defense contractors to implement TQM did little, if anything, to prompt TQM implementation. Many firms still do not have viable TQM programs. However, all defense contractors claim to have a TQM program in order to be in compliance with the federal mandate. Apparently, many firms changed their quality programs in name only, and continued with business as usual.

The future of TQM for Aerospace Defense firms appeared even brighter, since the shrinking defense budget was forcing these firms to seek alternate business opportunities. Those firms that rejected TQM may be forced to rethink their strategy when confronted with the challenge to compete in commercial markets to ensure survival of their firm. The ultimate decision of each firm whether or not to implement TQM must be based on their judgement of what it takes for their firm to survive. Whether they choose to implement TQM as their strategy, or something else, it was evident that they will have to address quality improvement.

The final judgement on TQM as a successful strategy to improve corporate performance, product quality, profitability, and reduce costs remains unclear at this time. The initial reports and results look promising. However, TQM is a long-run program that is still relatively new to most American firms. Questions remained on whether firms will have the perseverance to stick with the program over a long time period. Will the process of continuous improvement be sustainable, or will it lose its momentum like other passing fads? Are the initial improvements in performance indices sustainable or just the result of initial enthusiasm for the program? Many more questions remain, and only time will tell if TQM was truly the strategy destined to save the Aerospace Defense Industry and corporate America. There is cause to be optimistic, but caution is also in order.

Malcolm Baldrige Award Effects

The Malcolm Baldrige National Quality Award undoubtedly had a significant impact on TQM programs implemented by American corporations. The question of whether the impact was positive or negative can be debated, as demonstrated in the Crosby and Reimann

articles, but the question of the impact can not. Just based on the number of requests for applications each year, it is obvious that corporate America has embraced the award, and its criteria serve as the model from which TQM programs are being developed.

The intent of the award was to get corporate America refocused on quality issues, and renew interest in quality education in America's classroom. The award has achieved these objectives, even though many would argue that foreign competition was the real driving force behind the rebirth of quality in America. Regardless of the reason, the important fact is that American corporations are again focused on product quality after ignoring it for years.

The Aerospace Defense Industry is a significant element within corporate America because of its critical link to our national security. Like other industries, it ignored quality for years to the detriment of the entire nation. It truly appears that the trend toward adopting TQM is well entrenched now, and quality is once again receiving the attention it always deserved. The days of pushing quality control off to the side, to a quality department that was

ignored for the most part, appear to be gone. At least their is reason to hope that is the case, and that quality will remain at the forefront of corporate strategy, instead of becoming just another passing fancy.

REFERENCES

REFERENCES

Aerospace firms committed to installing TQM methods. (1990, January). Aviation Week & Space Technology. pp. 62-63.

Aerospace suppliers adopting TQM to remain competitive. (1990, July). Aviation Week & Space Technology. pp 70-71.

Allen, L. G. (Ed.). (1990, December). Costs & inspection time nosedives as quality takes off. Automation. pg-22.

Brosilow, R. (1990, August). Managing for success. Welding Design & Fabrication. pp. 35-39.

Crosby, P. B. (1991, May). The Baldrige award as a negative. Quality Progress. pp. 42-43

Defense dept. acknowledges weak quality control. (1987, January). Aviation Week & Space Technology. pg 23.

Frank, D. N. (1990, October). Applying TQM within the aerospace and defense procurement function. 33rd International Conference Proceedings of the American Production and Inventory Control Society. New Orleans, LA.

Juran, J. M. (1991, March). Strategies for world class quality. Quality Progress. pp 81-85.

Management practices: U.S. companies improve performance through quality efforts. (1991). United States General Accounting Office. Washington, D.C.

Randall, N. R. (1990, October). Norton takes charge of total quality program. Ceramic Industry. pp 47-49.

Reimann, C. (1991, May). The Baldridge award criteria speak for themselves. Quality Progress. pp. 43-44.

Shrontz, F. (1990, March). Commitment: Key to productivity and quality. Production & Inventory Management Review. pp. 224.

Smith, B. A. (1989, December). Total quality management will require procurement changes, perseverance. Aviation Week & Space Technology. pp. 59-60.

Value line investment survey. (1991). New York: A. Bernhard.

APPENDIX

AEROSPACE DEFENSE INDUSTRY PRIMARY CONTRACTORS

1. Aerojet. Manufacturer of propulsion systems, ordnance, and electronics.

2. ARX. Electronic components, wire, and cables for military aircraft.

3. AAR. Supplier of products/services for worldwide airline industry.

4. Boeing. Leading manufacturer of military and civilian aircraft.

5. CAE. Manufacturer of simulators for military and civilian aircraft.

6. EDO. Design and manufacture of electronic components.

7. E-Systems. Design and manufacture of electronic communication and navigation equipment.

8. Gencorp. Owns Aerojet, plus a polymer and automotive division.

9. General Dynamics. Manufactures aerospace and military aircraft products; 2nd largest defense contractor.

10. General Motors 'H'. Hughes electronics division, manufactures aerospace and telecommunication products.

11. Grumman. Manufacturer of carrier based aircraft.

12. Hexcel. Manufacturer of honeycomb core materials, fibers, composites, and resins.

13. Hi-Shear. Manufacturer of aerospace fastener systems, electronics, and ordnance.

14. Lockheed. One of the largest defense contractors, builds aircraft, missile systems, and host of other products.

15. Logicon. Builds electronic systems primarily for communications.

16. Loral. Builds electronic systems, and weather and communication satellites.

17. M/A-Com. Builds electronic device subsystems and components.

18. Martin Marietta. Major U.S. defense contractor in aeronautics, missiles, electronics, navigation, air traffic control, and aircraft materials.

19. McDonnell Douglas. Major U.S. defense contractor in military aircraft, missiles, spacecraft, and commercial aircraft.

20. Moog. Builds precision control components.

21. Nichols Research. Primary contractor for optics technology research.

22. Northrop. Manufacturer of military aircraft, sophisticated avionic, electronic, and communication components.

23. Raytheon. Manufacturer of electronic equipment and missiles.

24. Rockwell. Builds the space shuttle's main engines, satellites, missiles, electronics, and a host of other products.

25. Rohr. Produces structural assemblies for jet aircraft.

26. Sparton. Makes electronic components for communications, navigation, and ordnance.

27. Sundstrand. Builds electrical power generating equipment.

28. Thiokol. The largest producer of solid rocket propulsion systems in the U.S.

29. TransTechnology. Builds aircraft hoist and winch systems, high explosives, chaff, and computer based equipment.

30. UNC. Overhauls turbine jet engines, fabricates and repairs precision jet parts.

31. United Industrial. Builds military training simulation systems, automatic/mechanical test equipment, and the Pioneer unmanned aerial vehicle.

32. Watkins-Johnson. Semi-conductor, micro-wave, and turn-key systems manufacturer.

33. Wyman-Gordon. Designs and fabricates technically advanced forgings and investment castings.

ECONOMIC IMPACT OF DEFENSE BUDGET CUTS

A Designated Paper

Presented to

the Faculty of the Department of Technology

East Tennessee State University

In Partial Fulfillment of

the Requirements in Industrial Management

for the Degree

Master of Science in Technology

---

by

Christopher J. Addison

August 1992

THE ECONOMIC IMPACT OF U.S. DEFENSE SPENDING BUDGET CUT PROPOSALS.

Purpose. A study of the impact of defense spending cuts on the U.S. economy in the decade of the 1990s.

Procedure. This study was based on research material obtained from the East Tennessee State University Library.

Conclusion. The idea of a "peace dividend" in the U.S., as a result of defense cuts made possible by the fall of communism in East Europe, is a myth. The fact that the nation faces huge budget deficits, and still has valid national defense needs which cannot be ignored, makes such an idea implausible. There are many misconceptions about actual defense spending levels, which are vastly overstated, and the size of possible future savings, which this study attempted to reveal in a common sense, logical approach.

.....

This paper was prepared and accepted as a fulfillment of the requirement for a research paper in the designated course Industrial Management under the non-thesis option.

DR. Carroll Hyder

TABLE OF CONTENTS

CHAPTER 1

Introduction

Purpose of the Study

The purpose of this study was to examine and assess the impact of defense budget spending cuts on the economy of the United States. The collapse of communism in the former Soviet Union and Eastern Europe has ended the arm's race, which consumed a substantial part of the nation's budget in recent years. The result has been the call for a massive "peace dividend" to celebrate the end of the cold war. In truth, can a nation with the huge budget deficits of the U.S. claim a "peace dividend"? Can the defense structure of a nation, carefully built-up as a strong segment of the economy, be dismantled overnight without severely impacting an economy already in recession? Does the nation owe those who served their country in the military or defense industry a guarantee of continued employment? Can a militarily oriented industrial structure be successfully converted to civilian, free market industries? These are but a few of the questions this nation must address in determining the future of defense spending levels in the U.S. The need to balance urgent domestic needs, to ensure the welfare

of the defense dependent segment of the economy, and to handle a budget deficit that is growing out of control presents a significant challenge in the coming years for those in government.

Significance of the Study

The issues involved in this study have far reaching consequences for every member of this nation. The massive U.S. budget deficits are considered by most experts to be the nation's most urgent problem. These debts are to be our nation's gift to future generations unless we act to stop them now, and return to a more responsible government that does not spend beyond its means. The end of the arm's race and cold war has brought on a call to reduce defense spending drastically as the economy's salvation. This study attempts to show conclusively that defense spending cuts alone will not provide the needed resources to solve all of the nation's economic problems.

Granted, there is a significant opportunity now to cut defense spending responsibly and return to more sensible funding levels. The unspoken truth is that these savings alone are not going to remedy the budget deficit. In fact, the annual interest on the budget deficit alone nearly exceeds the total annual defense

expenditures. In other words, if defense spending were totally eliminated the savings would not be enough to pay the annual interest charges on the national debt.

Another popular sentiment is that all of the nation's domestic problems can be fixed by raiding the defense budget. Some argue the money should be used to improve education. Others say invest it in the nation's infrastructure. Still others say use it to deal with the growing problems of America's inner-cities. Numerous special interest groups have their own grand plans as well to put these savings to work.

The problem with this logic is the funds do not actually exist. These savings are actually reductions in the amount the U.S. must borrow to finance its budget. Add the fact the nation is also spending close to $200 billion to bail out the troubled savings and loan industry, plus the reality that costs involved in effecting the reduction of the military are expected to offset any savings for the next five years, and it is obvious that the idea of a huge "peace dividend" is unrealistic.

Definition, Assumptions, and Limitations

Definitions. The terms used in this study are not unique in any way, and were all used in their classical context. The only possible exception could be the use of the term "peace dividend", which is merely a phrase coined to describe the expected savings from defense spending reductions as a result of the collapse of communism in the former Soviet Union and Eastern Europe. Also, the term conversion is used to refer to the process of transforming military resources and defense industries into commercial, civilian uses. The other economic, financial, and industrial terms were applied as they are commonly defined, which does not warrant further formal definition here, since they were not used in any unique manner.

Assumptions. The following assumptions were made in conducting this study:

a. The East Tennessee State University Library served as the primary source of literature, and was assumed to be an adequate source of reference material to cover this topic. Additional sources were obtained using the interlibrary loan program when possible.

b. The authors whose research articles were reviewed and used for this study were assumed to be subject matter experts. In some cases the author's credentials were not included as part of the article; therefore, it was impossible to verify their particular expertise accurately.

c. The statistical and financial data presented in the various articles was assumed to be accurate. There was no way to actually verify this conclusion. In comparing data between articles no discrepancies were found, indicating the authors used the same basic data.

d. There was obvious bias in various articles, depending on whether or not the author favored planned reductions in defense spending. As subject matter experts, the authors were given equal credibility with respect to their arguments, based on their supporting data. To balance the effects of bias, an equal number of pro and con articles were used.

Limitations. The following limitations must be taken into account for assessing the validity and usefulness of this study:

a. As previously stated, the research materials used for this study was limited to those available at

the East Tennessee State University Library, or through the interlibrary loan program. This study does not encompass the entire body of research material written on this topic, therefore.

b. The scope of this study was limited to those areas considered most relevant to economic conditions within the U.S. Foremost among these areas were employment, conversion issues, investment in research and capital improvement projects, and the nation's budget deficit.

Methodology

The method used for conducting this study involved reviewing all available research literature to provide an assessment of the current and projected impacts of defense spending cuts. The assessment focused on the existing conditions within the nation's defense community, the relationship between defense spending levels and economic factors, opinions held by experts within the defense industry, specific impacts already being felt, and trends of future impacts based on the most likely levels of defense spending over the next five years. The literature reviewed was deemed as an accurate representation of the total population of

literature written on this subject matter, even though it was not all encompassing as previously stated.

The sources of literature used for this study consisted of economic periodical publications and general news publications. Some of the major sources included Business Economics, Newsweek, Time, Political Science Quarterly, Business Week, and U.S. News and World Report. In addition, Army Times, the unofficial newspaper of the Army, was used as another source to fill in details not found in other publications.

The other major source of information used was articles in trade publications such as Aviation Week & Space Technology, Design News, and Los Angeles Business Journal. These publications provided a good source of information on specific events within the defense industry, and general trends occurring.

The conclusions drawn in this study were based on the research material reviewed, and the author's knowledge and experience as a member of the defense community over the past 12 years. The intent of this section was to concisely summarize the research findings, and based on those findings assess the future economic impacts related to planned defense spending

levels. In accomplishing this task, a primary goal was to dispel some of the myths and fallacies inherent in the expectations being created for a so called "peace dividend", and make some common sense recommendations to logically approach defense funding level decisions in the future.

CHAPTER 2

Review of Literature

Background and General Conditions

Defense spending as a percent of gross national product (GNP) has been fairly consistent since the 1960s. In the 1960s it averaged 8.4%, dropped to 5.8% in the 1970s, and increased slightly to 6.1% in the 1980s. Aggregate spending in constant 1989 dollars was up roughly $55 billion in the 1980s though, compared to the 1960s, thanks to GNP growth. In 1989 defense spending amounted to just over $1,200 per person in the U.S. (Garfinkel, 1990)

The proposed defense budget cuts sound large, but in 1990 a $3 billion reduction only amounted to 1% of the Department of Defense (DOD) budget, 0.6% of GNP, and $13 per person in the U.S. Defense budget cuts were a far greater portion of GNP following World War II and the Korean War. The $7.4 billion cut in 1953 represented about 2% of GNP. (Garfinkel, 1990) With modest economic growth of 2 to 3% over the next decade, spending should drop to 2% of GNP. (Smith, 1990)

The defense budget is divided into several major categories, within which spending is restricted to only those specified functions. Of all the categories,

military construction is the only one expected to increase slightly between now and 1996. The other categories are expected to decline between 3 to 6% after adjustment for inflation. These areas include personnel, procurement, operations and maintenance, and research and development. A major impact will be the projected closing of 31 major and 12 smaller U.S. military bases, and reduced operations at 28 other bases. (Meckstroth, 1992)

The Budget Enforcement Act of 1990 established defense spending limits of $298 billion in fiscal year (FY) 1991, $296 billion in FY 1992, and $293 billion in FY 1993. These expected levels of spending roughly equal 5.25% of GNP, compared to 6.6% in 1986, and 4.8% in the late 1970s. (Eisner, 1991)

Heading into the FY 1993 budget battle, President George Bush is fighting to hold defense spending cuts to $8 billion for the year, and to a total of $50.4 billion for the five year period, 1992 to 1997. The proposed additional cuts would come almost entirely from the procurement accounts to avoid further personnel cuts. The Democrats were arguing the cuts could be doubled, however, with no significant negative

impact to the nation's capability to respond to known potential threats around the world. (Bond, 1992)

The administration argues that the military was severely underfunded prior to President Ronald Reagan's build-up, and to return to that level of funding would be a grave mistake. The force was poorly equipped, supplied, and trained at that time, according to Defense Secretary Richard Cheney. The proposed administration budget is based on their evaluation of capabilities that reasonably can be eliminated, rather than just picking a dollar figure. Secretary Cheney argues that this nation has never drawn down its forces in an orderly manner, based on future requirements, but he intends to do it right this time. (Bond, 1992)

Congress criticizes the rationale for maintaining 18 Army divisions, 12 carrier battle groups, and 26 tactical fighter wings in a world without a significant Soviet threat. The administration counters that the forces are only what would be needed to conduct a Desert Storm type operation and, at the same time, maintain defense of the continental U.S. with a similar sized force. The demise of the Soviet threat was considered a developing event, which still had many

uncertainties to be resolved. Other arguments involved the cost sharing issue between the U.S. and its allies, and the political bidding war to see who could cut the defense budget the most. (Bond, 1992)

To the administration's benefit, Senator Sam Nunn (Democrat-Georgia), who is head of the Senate Armed Services Committee, came out in support of President Bush's budget. His substantial influence with members of both houses of Congress was expected to gain the President the support he needed to get his budget approved. Opposition from Representative Les Aspin, Head of the House of Representatives Armed Services Budget Committee, and Senator Edward Kennedy was expected to be almost totally negated by Senator Nunn's support, since he is the Democratic Party's most highly regarded defense expert. (Bond, 1992)

In a FY 1993 budget compromise, the administration lowered their planned expenditures by $10.3 billion in response to the call for greater cuts in spending. The five year plan included $63.8 billion in cuts, compared to previous projections of $50.4 billion. The bulk of the cuts came from procurement accounts for new weapon systems, particularly nuclear capable ones. Congress

and the President ultimately agreed to stop production of the B-2 bomber at 20 aircraft, to limit Sea Wolf submarine production to a single prototype, and to defer indefinitely the decision to procure the Army's Comanche helicopter. The new budget called for total defense spending of $267.6 billion. (Bond, 1992)

At the heart of the debate over defense spending cuts is how to use the money saved. The majority of Democrats in Congress immediately began arguing to spend the so called "peace dividend", rather than apply it to the budget deficit. On the other hand, most Republicans argue any savings should be applied to reducing the nation's huge budget deficit. The budget pact of 1990 prohibits any savings from cuts in defense spending to be used to increase domestic spending. The Democrats are proposing legislation, however, to overturn this agreement, which President Bush has vowed to veto. (Gleckman & Harbrecht, 1991)

Recently, the attempt to overthrow the budget pact was voted down in the House of Representatives. The attempt to deepen defense budget cuts was made far less politically attractive by this move, since funds cannot be shifted to domestic needs. A couple of days later a

proposal from Senator Jim Sasser (Democrat-Tennessee), who Heads the Senate Budget Committee, to cut another $10 billion from the defense budget was also voted down. It appeared the President's compromise budget would be approved. (Army Times, 1992)

In reality, it will be years before any actual savings are realized, due to the costs associated with reducing the size of the military. The long lead time for awarding contracts means those contracts must be honored or substantial termination costs incurred. In addition, there are significant costs involved in closing military bases, which must be cleaned up prior to conversion to civilian uses. Of total defense spending, procurement of new systems only accounted for 15% of the budget, meaning far greater personnel cuts would have to be made to save the amounts of money desired by the Democrats. (Gleckman & Harbrecht, 1991)

A fallacy of the notion of a "peace dividend" is that you cannot spend what you do not have. The fact is that with the budget deficit the government has been spending on credit for years. Now they are talking of spending a "peace dividend", which equates to more borrowing. (Blinder, 1990)

It is possible to argue that the U.S. is already enjoying a peace dividend, because defense spending peaked in 1987, and has been steadily declining since. The burden of defense spending on the U.S. economy has been far from overwhelming. The deeper anticipated cuts are merely an acceleration of an already downward trend in defense spending. Special interest groups are lined up to fight for the dollars freed by defense spending cuts. (Hornik, 1990)

Military Needs Consideration

The American defense budget is viewed much like an insurance policy. The amount of protection required is dictated by the perceived threat of hostile events in the global environment, and the available resources to fund the desired level of defense spending. Taken together these factors must be balanced to determine the appropriate level of defense spending at any given time. (Meckstroth, 1992)

The perceived threat to American interests were greatly reduced by the demise of the former Soviet Union and the fall of communism in Eastern Europe. As a result, defense spending was projected to decline by approximately 19% over the next five years, through the

FY 1996 budget. These cuts were expected to impact virtually every area of the defense sector, to include civilian industries that depend on the defense budget for their revenues. (Meckstroth, 1992)

Despite the fall of the major communist threats, the U.S. still has legitimate defense needs. History warns that neglect allows the ambitious, like Hitler, to rise to power. The U.S. is the world's last true superpower, which entails enormous responsibility for maintaining global peace, order, and stability. The danger for the U.S. is not to lose sight of maintaining a balance between being the knight in shining armor for every crisis in the world, and carelessly using indiscriminate force whenever its convenient to eliminate a nuisance. The U.S. must not become the world's "supersucker" or "superthug". (Smith, 1990)

The military still has four vital missions. First, and most important, is protection of the continental U.S. territories. The U.S. is relatively safe from any threat of invasion, if for no other reason than its isolated location, but the threat of a nuclear missile attack remains a concern. The proliferation of weapons in third world nations increases this risk on a daily

basis. The unstable governments in these regions make their potential actions much harder to predict. China, Israel, India, and Pakistan are already believed to have nuclear capability, while a host of other nations have acquired chemical capability. (Smith, 1990)

Another important mission is to protect the sea lanes for international trade. The U.S. is the world's largest trader and has the greatest interest in keeping the sea lanes open, therefore. Along the same lines, air space must be equally protected to serve our national interests. (Smith, 1990)

The third role of the U.S. military is to discourage the hostile expansion of territory by foreign nations, especially oppressive dictatorships and communist governments. Given the current state of world affairs, the only nation with the potential size and resources to challenge the U.S. is China. China does not pose an immediate threat, since China has not demonstrated any hostile intentions to expand in recent history, and they are lagging behind in technological development. However, the rise of a powerful dictator, with control over Europe's vast resources, could muster

a significant threat to U.S. interests, as Adolph Hitler did leading up to World War II. (Smith, 1990)

Finally, the U.S. will continue to serve as the champion of democracy around the world and punish its challengers. In many cases the preservation of sovereign democratic nations in other regions of the world has no bearing on direct U.S. interests. From a humane standpoint, the U.S. is still committed to preserving the right of these nations to choose their own form of government. (Smith, 1990)

The need to reshape the military forces of the U.S. in response to the changing global environment is a valid issue. However, the driving force must be structuring the force to meet anticipated needs and threats, rather than pulling numbers out of thin air. The demise of the threat of communism has been partially offset by the rise of third world powers, such as North Korea, which have rapidly acquired sophisticated tanks, ballistic missiles, chemical weapons, and other modern arms. The potential development of nuclear arms in these countries looms on the horizon as the next serious threat to world peace. (Duffy, 1991)

The demise of the communism has not made the world an altogether safe place to live. The number of nations having sophisticated weapon technology and production capability has vastly grown. The threat of third world nations to their neighbors has increased, and the potential for violent regional wars is as high as ever, if not higher. The U.S. must remain prepared to respond appropriately to these emerging situations, and continue to serve as a deterrent to aggressive nations who are intimidated by the military strength the U.S. can project. (Friedberg, 1991)

The breakup of the communist governments in the Soviet Union and Eastern Europe did not diminish their military capability. The tanks, submarines, aircraft carriers, nuclear weapons, etc., are all still there, available for use, and the U.S. military must plan accordingly. The reduction in the state of readiness to a more relaxed mode should not be confused with a feeling of total confidence that the threat of new aggression no longer exists. (Budiansky & Auster, 1991)

The new role of the military should evolve into maintaining stability in regions of interest to our national security. The new threats are much more

difficult to define than the old Soviet Union was, because of their smaller size and greater difficulty in monitoring all of their activities. The current mood appeared to favor a gradual reduction in the defense budget and capability over time, rather than a major restructuring overnight. (Budiansky & Auster, 1991)

Yet, policymakers face numerous legitimate issues that must be resolved in planning the ultimate force structure of the future. At the forefront is the question of continued equipment modernization, which was a key element of rebuilding the strength of the force in the decade of the 1980s. This strategy proved its worth during Operation Desert Storm in which the vast technical superiority of the U.S. military led to a seemingly easy victory with minimal losses. Should the momentum to develop even better technology in a future generation of more sophisticated weapons be continued without the arm's race with the Soviet's? (Budiansky & Auster, 1991)

The Pentagon apparently thinks so, and is still promoting the development of planned future weapons. Their rationale for supporting these programs has yet to be articulated in a manner that convinces policy-

makers that there is truly a need, however. The Pentagon argues that they only fight the Soviet threat on computers, and that actual threats throughout the world drive their requirements. When the capability of potential threats is actually reviewed, the weapon technology of threat nations is by far inferior to the U.S. For example, in any potential conflict the Navy would be facing diesel powered submarines with nuclear powered attack submarines. (Budiansky & Auster, 1991)

There are a number of systems that are due for replacement because they have reached the end of their service life. System's like the Navy's A-6 attack jet, which is outdated, are still viable as modernization projects. Even with the increased spending of the 1980s, not all systems requiring modernization made it into the budget. (Budiansky & Auster, 1991)

Current plans call for the Army to reduce from 18 to 12 active divisions, the Air Force to go from 24 to 15 active fighter wings, and the Navy to drop from 14 to 12 carrier groups. Secretary of Defense Cheney argues that this is the bare minimum force the U.S. needs as of 1996. These numbers are based on the Pentagon's new require-ments based strategy, which has

replaced the old threat-based strategy. The major problem the Pentagon now has is the lack of a specific threat to plan for, and the inability to pinpoint accurately the actual capability needed to deal with the multitude of potential third world threats that could emerge. The Pentagon's proposed force structure is deemed adequate to handle two regional conflicts at the same time, while maintaining two divisions in Europe and one in Korea at all times. It is also assumed the force is large enough to handle a sudden reconstitution of the Soviet threat. (Budiansky & Auster, 1991)

The strategic direction of future modernization of current weaponry appears to be headed toward continuing research and development efforts to the point of building prototypes, but stopping short of actual production. The systems would then be shelved until actually justified by a new emerging threat, or needed for replacement of a current system that has exhausted its service life. As an alternative, new technologies may be incorporated into existing weaponry as upgrades when feasible. The upgrade of existing systems is considered far less of a risk than developing

completely new systems. Ideally, the future will see weapons replaced when they wear out, instead of when they become obsolete due to new technology developed in threat nations. (Budiansky & Auster, 1991)

A key area of force structure that must be addressed involves eliminating redundant capabilities between Air Force and Navy Air Wings, and the Army's rapid deployment force and the Marine Corps. The Pentagon also favors reducing the National Guard from 10 to 6 divisions, a move Congress strongly opposes due to hometown sentiment. (Budiansky & Auster, 1991)

A strong argument has been made to eliminate the Marine Corps because of redundancy with Army missions. The Marines were expected to have trouble justifying their continued existence given the expected budget cuts. Future wars most likely will be low-intensity conflicts similar to Grenada or Panama. The Marines were created for this role, yet played no significant part in either operation. (Voorst, 1990)

The Army meanwhile has restructured to meet this emerging mission requirement by creating seven light divisions, which give it the same capability as the Marines for these missions. In addition, the Army,

Navy, and Air force all have highly trained special operations forces capable of taking over the Marines terrorist and guerilla warfare missions. The only things favoring the Marines is their proud history of service and several former members in Congress who are expected to fight for them. (Voorst, 1990)

A proposal has also been made to cut the Officer Corps in half. It was suggested this action would cut personnel costs in half, slash procurement costs by reducing waste, and improve overall troop readiness. The Army had 14 general officers per division at the end of World War II, compared to 22 today. The Navy has gone from one admiral per 130 ships to one for every two ships. The logic in keeping excess senior officers is in the event of a major war units could be quickly formed for these experienced veterans to take charge of. There is currently one officer for every six enlisted soldiers in the service. (Bennet, 1990)

The problem is there are not enough productive jobs to keep all these officers gainfully employed, and therefore, readiness actually decreases while cynicism increases. For each command position in the Army there are 16 colonels and 13 lieutenant colonels (LTC)

available to fill it. The Air Force has only 244 squadrons to command, with 12,425 LTCs available to command them. As a result, many get no command time at all at these senior levels, or they get less command time to allow rapid rotation of as many officers as possible in these positions, which hurts unit cohesion and readiness. Trained troop leaders end up working in public relations, writing speeches, lobbying Congress, etc., instead of performing the duties they were trained and prepared for. (Bennet, 1990)

The up-or-out promotion policy, which forces officers out of the service if they are passed over twice for promotion to any rank, forces them to seek "ticket-punching" jobs that enhance their chances for advancement and to quickly move on to another job. Spending too much time in any one job is considered stagnant, and a certain road to passover for promotion. (Bennet, 1990)

The most sensible strategy for the U.S. in the 1990s is to maintain friendly relations with the nations formed from the former Soviet Union, while keeping vastly superior military forces over third world nations intact. The realistic approach to

defense reductions must be an incremental approach, with reductions tied to real reductions in the former Soviet Union. In actual terms, the Soviets have done little to reduce their arsenal. The U.S. should remain capable of handling a conflict like the Vietnam or Korean War, at the very least. (Weidenbaum, 1991) Table 1 shows the equipment capability of U.S. forces as of 1991:

TABLE 1

Estimated Equipment Inventory[a]

Equipment	Inventory
Tanks	16,000
Light Armor Vehicles	35,000
Artillery	7,000
Fighters/Bombers	5,000
Helicopters	10,000
Heavy Bombers	300
Aircraft Carriers	14
Ballistic Missile Submarines	34
Attack Submarines	91
ICBMS	1000

[a]Adapted from Budiansky & Auster. (1991)

President Bush requested a $291 billion defense budget for 1992. It was suggested some $45 billion more could be cut without hurting the security of the U.S. The majority of the savings could come from cutting the requested funding for the strategic defense initiative in half, dropping additional purchases of the B-2 Stealth Bomber after the 15 in production are delivered, dropping procurement of the Sea Wolf attack submarine, dropping production of the C-17 transport aircraft, and the elimination of 100,000 troops from Europe. (Duffy, 1991)

The Brookings Institute, a liberal think tank, has called for a one-third cut in defense spending by the end of this decade. Their proposed defense budget of $169 billion at the end of the decade would allow the U.S. to continue to be a dominate world military power, capable of a Desert Storm type operation anywhere in the world, based on their analysis. The current Pentagon projections call for a budget some $75 billion higher by this time. A major difference would a reduction in the Navy from six to four carrier groups in a contingency operation. Six were employed in Desert Storm. Total defense spending over the decade

would be $316 billion less than Pentagon projections based on the Brookings' plan. (Mann, 1991) Table 2 gives a breakdown of the 1992 defense budget:

TABLE 2

1992 Defense Budget

Account	Budget
Personnel	$78 Billion
Operarions & Maintenance	$87 Billion
Procurement	$63 Billion
Research & Development	$40 Billion
Military Construction	$5 Billion
Family Housing	$4 Billion
Atomic Energy	$12 Billion
Other	$2 Billion

[3]Adapted from Budiansky & Auster. (1991)

The expectations of a 50% reduction in defense spending are unrealistic. The defense budget most likely will be reduced around 5% per year in real terms. The effects of these smaller, gradual reductions will also serve to greatly soften the impact

of the cuts. Future force levels and procurement will have to be pared to conform to budgets; but, at the same time Congress must stop their hometown, special interest approach to budgeting. Their must be a distinction between pork and patriotism, which is often confused by special interest groups. DOD must be given more flexibility in managing their allocated budget to meet the nation's critical needs, rather than having programs forced upon them to keep voters back in the home district happy. (Weidenbaum, 1991)

A major problem seen with current defense budget plans is the lack of sustainment of a strong defense industrial base. The defense industry is expected to quickly erode in the coming decade, forcing greater reliance on commercial and foreign suppliers to meet critical needs. (Bond, 1992) The U.S. must act to identify critical defense industrial base capabilities, preserve existing critical capabilities, create new capability in critical areas that are lacking, and regulate foreign investment in U.S. firms who maintain critically sensitive technology. (Friedberg, 1991)

The cost of highly advanced, technologically superior weapon systems make them cost prohibitive to

many nations. The need for cooperative, multinational efforts to conduct weapons research and development appears to be the trend of the future, which also means sharing new technologies that are considered very security sensitive. The U.S. already depends heavily on foreign suppliers for numerous parts and components of their weapon systems. (Friedberg, 1991)

Economic warfare could play a much greater role in the future than actual combat. Control of scarce resources could be used to influence policies of other nations desperately seeking those resources. Trade and financial aid policies are already increasingly used to shape political policies of weaker nations. Trade sanctions are commonly used in cases in which nations fail to conform to expectations. (Friedberg, 1991)

Economic warfare between strong nations could also emerge. As an example, Japan's financing of a large part of the U.S. budget deficit could be turned to their advantage if they decided to use it to influence U.S. policy. The threat of withdrawing their support could substantially impact interest rates and the value of the dollar, or put the U.S. in a financial crisis if

they demanded immediate payment and stopped buying future treasury bills. (Friedberg, 1991)

The loss of access to foreign suppliers, which the U.S. already heavily depends on for parts for certain weapon systems, could significantly impact the ability to successfully wage war, or at least dramatically disrupt the ability to rapidly mobilize in an emergency situation. Fortunately, the relationship between strong nations is a two-way street in which a nation, like Japan, would be hurt just as much by any action they take as the U.S. Globalization has eroded the ability of the U.S. to sustain its industrial base and its autonomy at the same time. (Friedberg, 1991) At the same time, defense industry leaders point out their firms are vital to the nation's economic growth, and that the government could encourage more firms to stay in business by relaxing restrictions on exporting weapon technology to friendly nations. (Paul, 1990)

Internal issues DOD must address include streamlining procurement regulations to make it easier and less costly to do defense business; developing a highly professional acquisition workforce that is knowledgeable, and capable of managing the intricate procurement

contracts; regulating the relationship between government officials and contractors in a more constructive manner, that leads to teamwork and cooperation, rather than the current adversarial relationships; and totally restructuring the current DOD acquisition organization and process. The perception that the defense industry is dishonest, and DOD is not smart enough to notice must change. To preserve what is left of the defense industry and provide some sense of security for our national defense industrial base requires trust, cooperation, and teamwork. (Paul, 1990)

Domestic Needs Consideration

The administration proposed a 5% cut per year, for five years, resulting in a total of $180 billion in savings. In actuality this proposed cut represents no savings, because it only reduces planned future growth. The nation's urban centers have been compared to the conditions in underdeveloped nations, and it was suggested their problems could be solved by transferring defense money to the civilian sector. It is argued that President Reagan doubled the defense budget, while cutting spending on low-income families by 54% after adjusting for inflation. If the budget

had been held at the 1981 level, there would have been an additional $40 billion available for human needs and infrastructure in 1988. (Levinson, 1990)

There is a strong argument to shift defense funds to these urgent needs, yet Congressmen are unwilling to make cuts that affect their own districts. The large defense spending in the 1980s is blamed for the high interest rates, which caused a decline in civilian manufacturing, decreased civilian investment, and eroded the nation's infrastructure. (Levinson, 1990)

Currently the Budget Enforcement Act prevents the Congress from unilaterally cutting defense spending to shift funds to domestic needs. The Congress, who saw the agreement as a triumph because it got President Bush to break his pledge not to raise taxes, now see the agreement as a noose around their own necks. In a 1991 poll 52% of Americans opposed large cuts in defense spending, while only 42% supported them. (Duffy, 1991)

The Democrats are hanging on to this issue for political reasons. The neglect of domestic problems, such as education, housing, etc., in favor of defense spending and foreign affairs is their battle cry for

the 1992 elections. Their only solution, without increasing the deficit or raising taxes in an election year, is to raid the defense budget. (Duffy, 1991)

Reducing forces in Europe, and depending on deploying troops to areas of aggression in the manner of the Persian Gulf War, presents the opportunity to save tens of billions of dollars. It is believed the money needed to rebuild the nation's infrastructure can only come from defense spending cuts, given the already massive budget deficits. The shift would also provide civilian markets for some former defense contractors and facilities. The military employees 2 million soldiers and one million civilians, and 4 million more in defense related industries working exclusively on DOD contracts. (Ullman, 1991)

Military defense spending contributes to an economy's aggregate demand; therefore, any drop in defense spending creates a drop in total aggregate spending and demand. The government could certainly find ways to employ idle resources from military cuts. If nothing else they could spend years filling pot holes on the nation's highways. However, the best use

is to reduce the deficit which looms as the nation's biggest problem in the future. (Klein, 1990)

Those who argue to use the "peace dividend" to increase domestic spending forget about the $160 billion savings and loan bail-out that will offset at least five years of any reductions. The trend over time indicates that a 5% reduction in military spending only increases civilian consumption 3%, resulting in a 2% net loss in aggregate demand. Unlike civilian capital investment, military capital investment does not generate a future stream of income through production of consumer goods, or creation of jobs. (Klein, 1990)

Ideally, reduced military spending will result in smaller budget deficits, lower interest rates, and increased private investment. In addition, funds could be diverted to reducing taxes, infrastructure improvement projects, and improving education to help the nation's economy regain its world leadership. The biggest mistake would be to increase domestic spending on entitlement programs, which contribute little or nothing to the economy. Proposed reductions in military research should reduce demand for scientists

and engineers, and decreased wages make them more affordable to industry. (Friedberg, 1991)

Conversion Considerations

The U.S. Department of Commerce has found that defense spending influences virtually every sector of the economy. Besides the network of large defense prime contractors, there are thousands of suppliers and subcontractors who obtain at least part of their revenues from defense related activities. Within the manufacturing sector these include instrumentation, metals, transportation, electronics, non-electrical machinery, rubber, plastics, ceramics, textiles, and chemicals. The service industry areas are impacted as well, such as the food service industry which feeds the soldiers and workers. (Meckstroth, 1992)

The impact of immediate, substantial defense cuts could cause economic chaos in the U.S. due to our strong military orientation. The loss in jobs will cause big reductions in consumer spending, leading to a an even greater loss of jobs. Military bases and industries are concentrated in specific geographic regions, making the impact on those areas far more significant than to the nation as a whole. Specific

areas that would be hard hit include Los Angeles, St. Louis, Dallas-Fort Worth, Boston, Seattle, and the State of Connecticut. To cut defense spending successfully in these areas, a conversion plan to civilian industries is a must. (Levinson, 1990)

The most significant area for defense contractors will be the reductions in procurement and research funds in the future. In 1990 defense contractors were paid some $130.8 billion in prime contracts from the defense budget. Procurement funding was projected to decrease to about $79 billion in 1991 and follow a downward trend to $59 billion by 1996. In addition to the impact on large defense contractors, there are thousands of smaller defense subcontractors who will find it tougher to survive in the face of smaller contract awards. After adjustment for inflation, total procurement spending is projected to decline an average of 7% annually through 1996. (Meckstroth, 1992)

A substantial portion of the population benefits from U.S. defense spending. In addition to the defense contractors and subcontractors, there are lobbyists, agents, and stockholders earning profits from these defense contracts. The total DOD payroll also includes

some 3.1 million workers who represent 5% of the total U.S. workforce. As already noted, a lot of towns and cities depend heavily upon military bases, or defense contractors, for all or a substantial part of their livelihood. Without careful planning to off-set the impact of defense spending cuts, the impact on the U.S. economy could prove devastating. (Eisner,1991)

Successful conversion requires finding civilian markets for former defense contractors to serve. Some civilian market opportunities already exist, most notably in the aerospace defense industry, which also serves commercial airlines. The opportunity to sell avionic products to growing nations around the world is very strong. (Ullman, 1991)

A major problem with conversion will be matching needed civilian capabilities with existing capabilities of former defense contractors. There are five groups of firms who must be considered in conversion planning. First, those in industries such as food service and common items will be able to adjust quickly with little assistance. Next are those in specialized industries with up to 500 employees, such as electronics firms.

These firms will have to find new ways to apply their expertise to civilian market needs. (Ullman, 1991)

The third category consists of large corporations doing both defense and non-defense related work. This group includes corporations such as General Motors, IBM, and General Electric. The reaction of these firms might be to close down their military divisions, which are generally operated as separate, specialized units. The fourth group consists of large military contractors who depend almost entirely on DOD contracts for their revenues. Their survival requires development of major new products, retraining their workforce, and massively restructuring their operations. (Ullman, 1991)

The final category consists of the military bases taken out of service and the displaced personnel. The base closings are projected to have significant impacts on local economies, particularly those in remote areas. New uses for these facilities and grounds will have to be found. The conversion involves three primary issues. These issues are redesigning facilities, retraining workers, and surviving economically until the needed changes are made. The use of defense spending cuts must

take account of these issues, and Congress must plan to provide needed support for the costs. (Ullman, 1991)

As of early 1990 seven different proposals had been made in Congress to address these issues, but no action had been taken. There is strong opposition to the proposals stemming from the belief that the government should not intervene in a free market economy and that over time the market will adjust itself if left alone. (Ullman, 1991)

Congress has formed a task force to explore their options for assisting defense firms in conversion to civilian industries. Congress wants to ensure an orderly transition of labor, equipment, and resources to civilian uses. Expressing their distrust of the government, industry leaders have voiced opposition to this government intervention, and want to manage their own fate. Their only request to the government is that the cuts be made gradually over a reasonable period of time, and in an orderly fashion. (Gilmartin, 1990)

A proposal gaining momentum calls for adjustment planning grants of up to $250,000 to local communities affected by military base or defense contractor plant closings. A drawback to the plan, in the view of large

defense contractors, is a requirement for them to make contributions of 0.1% of their annual revenues, up to a $500 million per year limit, from defense related contracts to fund the program. (Gilmartin, 1990)

Others argue the defense industry should be left alone by the government to decide if, when, and how to restructure. The industry leaders have already stated this as their desire, and the government in this case has no particular right to interfere in their business decisions. The future size or existence of these firms are purely management decisions for the firm to make in their own time. (Weidenbaum, 1991)

Even with the cuts planned, the actual level of defense spending will remain high compared to historic levels, meaning many firms will remain strong. Even though fewer employees will be needed overall, there will still be many jobs within the defense industrial sector of the economy. Many of the job losses are the direct result of long needed restructuring to improve efficiency, rather than cuts in defense spending. Many firms have been operating "fat" for years, and are restructuring for competitive reasons. (Weidenbaum, 1991)

The argument that the nation owes communities with defense industries, or high levels of defense related employees something for their patriotism and sacrifices is flawed. These same communities fought very hard to get these goodies located in their communities, and have enjoyed the benefits for many years. Their self-serving arguments are clearly not valid in light of these realities. (Weidenbaum, 1991)

The greatest challenge in reducing defense budgets will be sustaining the high levels of research and development needed. These efforts must be shifted from the military community to the civilian sector, without allowing a significant drop in activity. The economic growth of a nation is strongly linked to its technology growth. The government should act to reduce barriers, and encourage civilian investment in these areas. (Weidenbaum, 1991)

In 1982 constant dollars, the U.S. spent $9.6 trillion on the military from World War II to 1988. This is $1.5 trillion more than the value of all the nation's tangible assets, except the land itself. The military's capital equipment inventory is valued at 40% of all U.S. industrial equipment. Over one-third of

all U.S. scientists and engineers work for DOD. From 1970 to 1986 civilian public investment fell from 1.5% to 0.4% of GNP per year, resulting in the overall deterioration of the nation's infrastructure to the point it has stagnated productivity. (Ullman, 1991).

Some argue that defense spending has not hurt the U.S. economy as is popularly believed. It can be argued, based on numerical support, that economic growth has been unaffected by defense spending. For example, only 4% of the federal budget, and less than 1% of GNP, was spent of weapons research. Of total spending on research and develop-ment in the U.S., roughly one third was spent by the government on military research. (Becker, 1991)

Had those funds not been spent on military research, they would not have been spent on research at all. The amount of these expenditures was not great enough to deter private sector investment in research. The comparison is often made to Japan, which only spends about 1% of GNP for defense. If the U.S. cut spending to the same level, the argument that the savings would all go into investment is unreason-able. The current ratio of four to one for consumption to

investment most likely would have held true, meaning that for every five dollars saved only one dollar would have been invested. Taking that into account, Japan would still be greatly outspending the U.S. in capital investments. (Becker, 1991)

The actual dollar amounts spent by the U.S. on research equals the amount spent by Japan, Germany, France, and Britain combined. The percentage of GNP statistic is misleading in this context. Military research has also contributed significantly to private sector product innovations. Examples include computer technology, jet engines, radar, velcro, and teflon. (Becker, 1991)

The U.S. is constantly criticized for spending too much on military research and not enough on commercial research. Formerly there were enormous opportunities to incorporate military developed technologies into commercial products, but growing concern for the nation's protection increased security requirements for new technology. Opportunities do still exist, such as high-definition television technology. A major area that lacked focus was manufacturing technology improvement. The nation needs leadership and vision to

develop an industrial policy to coordinate and employ research resources more effectively. (Costello, 1992)

The concurrent build-up of U.S. military forces and the decline of American international economic competitiveness, led to the conclusion by many that these events were directly related. As such, the only solution to the problem was obviously to cut the defense budget, bring troops home from foreign soil, and get rid of our external burdens. In fact, the problems this nation faces are much more complex than this simple explanation suggests. (Friedberg, 1991)

Those accepting this simplistic argument are overlooking other important factors and blatantly overstating their case. If any nation became overwhelmed by defense spending in the cold war it was obviously the Soviet Union, which eventually collapsed. The Soviets were forced to spend 25% or more of GNP on defense to keep up, while the U.S. was only spending around 6% of GNP. (Friedberg, 1991)

Ironically, both nations face similar challenges in converting military spending back to civilian uses; but, for the old Soviet Union the stakes are much higher since their very survival depends on their

ability to transform. The defense spending cuts in the U.S. are not as large a part of GNP, and are not going to provide the answer for all our problems. They do provide an opportunity to improve economic performance though, especially in international competitiveness. (Friedberg, 1991)

The benefits of reduced military spending impact the economy for a long time, even if they are only for a year or two, if the funds are converted to capital investments. The reason for this phenomena is the continued production of consumer products from the capital equipment, and the disposable income created by the jobs leading to increased consumer spending. This assessment is founded on the theory that reduced military spending would return scarce resources to the economy, would reverse the trend in decreased capital investment, and would spur economic growth. This theory is dependent on the allocation of funds saved between investment and increased consumer spending. The reduction of the budget deficit could decrease interest rates, thereby increasing investment, and production of goods. In the long-run exports could be produced

cheaper, which would increase the international competitiveness of the U.S. (Garfinkel, 1990)

Employment Considerations

Defense spending levels have historically been shown to affect the nation's level of unemployment. A 1% drop in defense spending in terms of GNP results in roughly a 0.4% increase in unemployment. To offset the effects on unemployment requires greater budget deficits, and a substantial increase in the monetary base. Based on this assessment, using defense savings to reduce the budget deficit would only worsen the impact on unemployment and the economy in general. (Eisner, 1991)

In the area of military personnel, the current plan calls for a 25% reduction in uniformed personnel by fiscal year 1996. In actual terms roughly 416,000 active duty soldiers will be taken off the payroll. The Army is expected to take the majority of the losses, some 215,000 soldiers or 29%. The DOD civilian workforce will suffer cuts as well, with an anticipated reduction of approximately 180,000 jobs by 1995. Within the private defense industry sector of the

workforce, another 163,000 jobs are projected to be eliminated annually. (Meckstroth, 1992)

In comparison to previous military cutbacks after the end of a war, these reductions are expected to be about one third the size of annual reductions after the Vietnam and Korean Wars. The effect on DOD civilian employees, and private defense contractors are projected to be roughly equivalent to these previous reductions. The total reductions in these categories represent only 0.2% of the total U.S. workforce in any given year. The direct impact on unemployment is projected to be quite modest. However, given the total impact of reduced spending throughout the entire business cycle, in which dollars spent are continuously reinvested or spent again, the reductions are expected to at least slow the pace of any future economic recovery. (Meckstroth, 1992)

The manufacturing industry sector is expected to be the hardest hit by the loss of jobs. The total loss of jobs in this sector is projected at over 400,000 by 1995, of which 325,000 is attributed to lower defense spending. The remaining job losses projected are the result of an expected 2.4% annual growth in worker

productivity. At the same time, only 125,000 new jobs are expected to be created in manufacturing. The new job opportunities are expected to fall far short of consuming the available, newly unemployed workers in this sector. (Meckstroth, 1992)

The defense spending cuts have dashed hopes for expected growth in manufacturing jobs in the 1990s. The increased competitiveness of U.S. firms in global markets had industry experts predicting employment growth, which in 1990 had returned to its 1966 level after years of decline. The Manufacturers' Alliance for Productivity and Innovation projected the net loss of 280,000 manufacturing jobs, along with the loss of 250,000 defense related nonmanufacturing jobs, 119,000 full-time active duty jobs, and 44,000 part-time jobs, which would severely strain the labor market. (Koretz, 1991)

Defense only accounted for 6.7% of total manufacturing output in 1990. However, certain industries depend more heavily on defense spending than others. Among those expected to suffer the greatest losses are the metals, electrical machinery, materials handling equipment, missiles, space vehicles, tanks,

shipbuilding, and aircraft industries. The displaced workers, who enjoyed high pay in defense, will have to accept much lower pay to get a new job. (Koretz, 1991)

Specific Area Considerations

Aerospace Defense Industry Influences. In 1990 the aerospace defense industry hit an all-time low in worker morale, in response to anxiety over the defense budget cuts that resulted in thousands of worker lay-offs. The traditional conflict between Congress, DOD, and the defense industry only serves to make the entire situation worse. DOD distrusts the defense industry in general because of amoral contractors who cheated the government for years. The defense industry claims inept government managers unable to control projects allowed this situation to occur. Congress, faced with public outrage when this situation was revealed in media reports, must now address this mess. (Paul, 1991)

Now future projections call for even tougher times, and during a period when t[illegible] work and cooperation are needed none exists. Leaders of the defense industry recently expressed their concerns for the nation's pressing needs in education, a balanced budget, help for the homeless, and a cure for AIDS.

Pointed out was the fact that as loyal Americans they should not have to state the obvious, but that was the sense of the current conditions they face. (Paul, 1991)

Yet, the defense industry represents a significant part of the American economy that cannot be blindly discarded. Maintaining a healthy defense industry is vital to the national security interests of the U.S., and contributes significantly to high technology commercial markets. The industry is restructuring to cut its costs and become more efficient. The bad habits of the past are being eliminated, and new management techniques, such as Total Quality Management, are being implemented. (Paul, 1991)

The industry stands to lose billions of dollars invested in research and development for new programs DOD requested. As programs are canceled, or production decisions are either delayed or extended over longer periods of time, the ability to recoup these investments is going up in smoke. The obvious result is many defense firms will fall victim to an industry shakeout, or convert to nondefense related business. (Paul, 1991)

In a surprise development, Congress decided to block the intended purchase of additional B-2 bombers.

The Congress virtually never kills major weapon system programs already underway, but gained confidence in their ability to succeed in killing this program based on President Bush's announced cuts in nuclear forces. The expected impact is for Congress to go after cuts in other programs specifically geared to the former Soviet threat. In return for the B-2 program cuts, Congress did agree to increase funding for the Strategic Defense Initiative (SDI) by $4.2 billion. (Borrus, 1991)

An industry shakeout is expected to reduce the overcapacity for meeting the nation's needs as Congress attacks other programs, such as the Sea Wolf, Trident Missile, the A-X Navy Bomber, the F-22 Air Force Fighter, the Comanche Army Helicopter, and the CVN-76 Carrier. Of two major shipyards capable of building Navy destroyers, Bath Iron Works in Maine and Litton's Ingalls Shipbuilding Division in Mississippi, only one is expected to survive the shakeout. (Borrus, 1991)

President Bush's cuts in nuclear arms included eliminating nuclear warhead equipped Tomahawk Missiles, elimination of the planned development of the Short-Range Nuclear Attack Missile (SRAM-II), cancellation of plans to put the MX missile on rails to allow frequent

repositioning, and cancellation of development of the mobile launching system for the Inter-Continental Ballistic Missile (ICBM). (Schine & Ellis, 1991)

Northup Corporation, who builds the B-2, derives half of their revenues, and 45% of earnings from this program. In the face of the cuts, Northup laid-off 12% of its workforce, some 5,000 workers. In anticipation of the cuts, they had put away $100 million in cash reserves to see themselves through. Likewise, General Dynamics obtains 85% of their annual $10 billion sales from defense contracts. They slashed 13% from their workforce, and cut $1 billion from planned capital expenditures. McDonnell Douglas has trimmed their workforce by 20,000 workers in just 18 months. Boeing is expected to lose $1.4 billion for work it has already done on the SRAM-II missile system. Defense contractors are gearing up to face even deeper cuts anticipated in future years as the momentum to reduce defense spending accelerates. (Schine & Ellis, 1991)

In the first nine months of 1990 some 45,000 jobs had been eliminated by primary aerospace defense contractors. To add to the problem, another 90,000 to 135,000 jobs were to be eliminated by subcontractor and

vendor firms by the end of the year. Industry employment peaked in 1987, at the height of the U.S. military build-up, with total employment exceeding 1.3 million. Employment has been declining 1 to 2% per year since the 1987 peak. The losses in jobs in 1990 have exceeded projections by over 25%. Natural attrition and early retirements were being used where possible, but firms were still forced to impose higher than expected numbers of lay-offs. (Kandebo, 1990)

At the start of 1992, the aerospace defense industry had actually lost a total of 106,000 jobs from the previous year. The projection for thousands of more lay-offs through the mid-1990s appeared on track as spending cuts were gaining momentum. Total employment of roughly 1.2 million workers represented an 8% decline, the largest single year drop in 20 years. Unlike previous cuts, these are the result of long-term structural changes, meaning they are gone forever. The situation cannot be expected to stabilize either, until the full impact of the cuts through 1995 are played out. (Velocci, 1992)

The cuts cited do not include additional cuts made by subcontractors in their workforce. It is estimated

that for every prime contractor job cut, another three subcontractor jobs, and almost two service-industry jobs were lost. Areas within aerospace that were hit the hardest included aircraft, 45,000 jobs; and missile production, over 22,000 jobs. Among specific job areas, production workers suffered the biggest losses at 41,000 jobs, followed by administrative workers at 20,000 jobs, scientists and engineers at 12,000 jobs, and technicians at 5,000 jobs. The remaining cutbacks were in management personnel. McDonnell Douglas made the largest cuts, 10,000 jobs, followed by United Technology Corporation, 6,000 jobs, Rockwell International, 5,000 jobs, General Dynamics, 4,000 jobs, and TRW, 3,000 jobs. Boeing, Hughes Aircraft, Northup, Martin-Marietta, and Grumman cut about 2,000 jobs each. (Velocci, 1992)

An area that might provide some relief for aerospace firms is possible increases in foreign military sales. Raytheon is expected to sell Saudi Arabia 14 additional Patriot Missile fire units and 758 missiles. Without this contract Raytheon would have been forced to shut-down its production line in 1992. It now appears the line will operate until at least

1995. During this time Raytheon will be seeking contracts from nine other nations to purchase the system. Interested nations include South Korea, Italy, Turkey, Kuwait, Israel, Egypt, the United Kingdom, the United Arab Emirates, and Taiwan. (Hughes, 1991)

Regional Influences. As previously mentioned, the impact of defense spending cuts is much more critical in areas of the nation economically dependent on defense related activities. Of all the areas to be hurt by the cuts, the hardest hit most likely will be regions within California that are almost exclusively dependent on defense business. Rather than attempt to cover the numerous areas of the country to be hurt by these cuts, the Los Angeles area was selected to provide an example of the impact upon a specific region these cuts can have.

Military defense contracts provide some $25 billion a year in revenue to Los Angeles County aero-space defense firms. The industry has seen 69,000 jobs disappear since 1986. The industry is still the strongest economic link in the Los Angeles area, yet there remains deepening wide-spread concern for the industry's future. Previous setbacks have all been

short-term, cyclical responses; but, this time it is feared the changes are permanent. (Jacobs & Deady, 1991)

Total defense related employment in Los Angeles is about 236,500 which represents 29% of the total industrial workforce. The projections from industry experts in the area suggested 100,000 to 150,000 of these jobs could be lost forever. The area's major universities are facing cuts in the millions of dollars they receive annually for military research. The local government will lose millions more in lost tax revenues from laid-off workers, while claims for unemployment benefits and social assistance are expected to sky-rocket. (Jacobs & Deady, 1991)

In addition to the spending cuts, many firms are abandoning the Los Angeles area for other reasons. Over population makes travel on the interstates a virtual gridlock. Pollution control problems are exacerbated by the population problem, as well as the heavy concentration of firms in the area. The more stringent pollution control measures forces companies like McDonnell Douglas to fly their planes to another state to be painted once they are built. The main

competitive advantage of Los Angeles, their reputation as the nation's leader in technology advancement, is being overtaken by these negative influences. Firm's are finding it more cost competitive and efficient to get out of the Los Angeles area. (Jacobs & Deady, 1991)

Within Los Angeles County there are also thousands of small job shops that depend almost entirely on defense subcontracts for their work. The defense spending cuts have brought on hard times for most of these firms, since major contractors are doing more work in-house and subcontracting less. Many have closed up shop, but a few have managed to get work from the auto industry to keep them going. The survivors, it appears, will be those who can find alternative markets for their products. Those who have found new markets are actually growing, while the less fortunate are going under. (Jacobs & Deady, 1991)

These job shops staked their business on making unique, obscure parts for weapon systems that major contractors found more convenient to subcontract, rather than make themselves. Some firms, such as Lucas Machine Company, have been in operation since the early 1950s by catering to these specialized needs. Many of

the employees have worked for the same shop for 20 to 30 years or more, making it difficult for them to find a new job after a shop closes. (Deady, 1991)

Other Influences. There are numerous other areas of the economy influenced by defense spending, which are not readily thought of in this context. Four examples of these areas are provided for consideration in the remainder of this section.

Apparel Industry. The military clothing budget has steadily declined from its peak of $1.3 billion in 1987 to just $899 million in 1989. DOD has decided to streamline apparel requirements, sticking to several basic types rather than the more exotic, high technology fabrics being developed. The purchase of Gore-Tex apparel for wet-weather and cold weather regions is being made optional for soldiers to purchase themselves, instead of being supplied to them. The higher price tag for these items make them far less attractive for the typical soldier to purchase from their own funds. Basic uniform purchases were also expected to decline significantly as the size of the military shrinks. Fewer soldiers obviously means fewer uniforms are needed. (D'Innocenzio, 1990)

The industry faces an additional problem created by contractors debarred or suspended from doing business with DOD, after a scandal in which they were found guilty of bribing government officials. The result was an 80% reduction in the number of firms eligible to compete for DOD business. With fewer competitors for contracts, prices were driven up by the movement toward more monopolistic market conditions. Small and minority owned companies, historically given favored treatment for award of these contracts, were replaced by major name and producers, such as London Fog. (D'Innocenzio, 1990)

The need for military apparel is still strong, but overall demand will be lower for the smaller force structure. Apparel firms who have grown dependent on DOD for all or a significant part of their revenues will either have to accept these reductions, or find new opportunities in the civilian market sector. The major producers will have no problem, but small firms face elimination from the field. (D'Innocenzio, 1990)

The 1991 defense budget slashed another $43 million from apparel contracts, continuing the downward trend. The rate of cutbacks is expected to follow the

trend in cutbacks of personnel through 1995, when the situation should stabilize if the current plan remains in effect. Actually, DOD has been buying more apparel products than they really need to support this weak national industry. The government mandates these purchases, along with a strict buy American policy. A good example was bootmakers, which were down to only four firms in the U.S. DOD and the military favor European boots, which are far superior to American made boots, but the buy American program protects these firms. The continued survival of these four firms depends heavily on their maintenance of DOD contracts. (Taylor, 1991)

Food Service Industry. Contract feeders in the food service industry face large scale cutbacks, in both the civilian defense industry and military contracts. The closing of plants and military bases is eliminating numerous clients they have served for years. Virtually every contract feeder in the U.S. has clients that are related to the defense industry in some way. Major feeders, such as Canteen, rely heavily on the likes of General Dynamics, McDonnell Douglas, and Hughes Aircraft for their business. Worker lay-

offs and plant closings have already dramatically impacted their revenues from these clients. However, not all contract feeders will be negatively affected. In some areas military base populations are increasing due to consolidation of some functions moved from bases being closed. Other areas, such as research labs, are being affected very little by the cuts. Regional influences will play a large role in determining which contract feeders are hurt the worst. (Prewitt, 1990)

Advertising Industry. Major defense contractors are significantly increasing their advertising expenditures in an attempt to save their vital defense contracts. The hope is that the ads will gain public, military, and government support for programs that might otherwise be killed in the budget war. For example, General Dynamics has increased advertising expenditures $5 million to make its case. Most experts feel the money should be used for lobbying, letter-writing, or political campaign contributions to members of Congress. (Miller, 1990)

Publications benefitting from the increased spending on ads include **Army Times**, **Air Force Times**, and **Navy Times**, the three chief military service

publications. At a time when most publications were losing ad business, these publications achieved a 3% increase in ad pages. Their circulation reaches 1.8 million consumers per week, which is more than other major firms such as Time, People, and Newsweek. (Miller, 1990)

The U.S. military is considered one of the nation's strongest niche markets, and it is heavily targeted by advertisers. Military exchanges had sales per store in 1989 that exceeded major retailers, such as J.C. Penny and K-Mart. Military personnel alone contributed $15.5 billion to total consumer sales in the U.S. during 1989. Industries that particularly target the military include travel, auto, insurance, telephone, tobacco, and liquor producers. These products are all considered to have unique appeal to military consumers. (Miller, 1990)

Engineering Profession. An estimated 28% of the nation's engineers depend on the defense industry for their livelihood. The spending cuts leave for them, at best, an uncertain future. Previous military cutbacks have led to wide-spread unemployment among engineers. However, the results may be different this time if DOD

continues to emphasize the development of new smart technology weapons for future production as needed. In particular, electronic engineers appear to be extremely important for developing the military's needed technologies of the future. The need for more sophisticated surveillance and intelligence capabilities will drive these requirements, as well as, future work within the aerospace segment of NASA. (Gardner, 1990)

All engineers will not be as lucky though. GE, for example, planned to lay-off 4,000 engineers from its defense related operations by the end of 1992. The laid-off engineers should find work quickly in the civilian sector though, if they are willing to relocate, and remain flexible in accepting lower paying jobs with fewer challenges. Opportunities should emerge in civilian works projects as the nation rebuilds its infrastructure, and in environmental projects which are expected to gain significant momentum in future years. (Gardner, 1990)

Research engineers can also expect to see increased competition for fewer dollars in the years ahead. This is particularly true within academic

institutions that rely heavily on DOD grants for performing their basic research. MIT's Lincoln Lab, for example, received $338 million for research in 1989. The basic fear is that the needed funding will not be forthcoming from alternate sources. (Gardner, 1990)

CHAPTER 3

Summary Findings and Conclusions

Misconceptions About Defense Spending

Within the research literature in Chapter 2, many of the misconceptions concerning the defense budget were uncovered. However, in many cases the articles failed to fully explain these misconceptions and why they are relevant in the consideration of future defense budgets. In this section, the misconceptions found in the literature are summarized, followed by a discussion of some additional considerations not addressed in any of the literature.

The following popular misconceptions were covered in the literature review:

1. The idea of a "peace dividend" was shown to be a major fallacy. A dividend, which is a bonus or pay-off earned from an investment, cannot be claimed by a nation whose annual spending depends heavily on huge budget deficits. At best, the opportunity to lower the nation's investment in defense spending is a chance to lower lending requirements. However, the reductions themselves will not provide the nation additional funds.

2. The belief that the end of the arms race and the cold war would result in immediate savings in defense spending was also shown to be flawed. The funding of defense budget commitments cannot simply be turned off overnight, with huge windfalls accruing to the govern-ment. Many of the commitments involve long-term contracts, which have significant termination costs. Actions taken to reduce the force structure also have significant associated costs, such as environmental clean-up costs for closed military bases, which in the short-term may actually increase costs.

3. The simplistic approach of pulling numbers from thin air to serve as targets for defense cuts is not a realistic way to deal with the situation. The nation still has legitimate, high-priority defense needs that must be appropriately addressed, as the Persian Gulf War reminded us.

4. The impact of defense spending cuts go beyond discharging a few thousand soldiers, and preserving some equipment until it is needed in the future. Studies have shown that virtually every segment of the population and every segment of the nation's industries are affected by defense spending. The economic impact

of rapid, large scale cuts in the defense budget could prove devastating to various regions and segments of the nation. The impacts have multi-tier effects, such as the unemployment influence on reducing the government's tax revenue, while increasing claims for entitlements like unemployment benefits and welfare.

5. Even the popular argument that large defense budgets of the past hurt economic growth of the nation by lowering investment proved questionable. The expectation that funds not spent on defense would have gone into additional investment was found unreasonable, while the defense budget provided growth in the defense community. In addition, military research and development funding added to the nation's advancements in new technology, such as the emerging market for high-definition television.

6. The illusion created that enough funds could be extracted from the defense budget to solve all of the nation's domestic ills and to provide finanical assistance to the former Soviet Union proved greatly overstated. Even if defense spending were totally eliminated it would barely cover the annual interest payments on the nation's debt. The belief that enough

money can be saved from the defense budget alone to pay-off the budget deficit, save education, rebuild the nation's infrastructure, solve the problems of the nation's inner-cities, etc., is unrealistic. Recent news reports indicated that entitlement programs now consume roughly 50% of the budget, and are growing far faster than the rate of inflation due to soaring medical costs. The answer for these problems cannot be found in the defense budget. The underlying causes of the problems must be addressed and resolved if the budget deficit is to be brought under control.

The remainder of this section will address some additional misconceptions not found in the literature review:

1. The amount the U.S. actually spends on defense is grossly overstated routinely by the government and media. As shown in the defense budget for 1992, the DOD budget includes $12 billion to fund the Department of Energy, of which only a small portion is related to defense nuclear energy needs. In an Army Times article providing details of the 1992 budget, it was reported that DOD was obligated to provide universities $1 billion dollars for nondefense related research, invest

$11.7 million more in military museums than requested, pay $750 thousand for fish stocking in Hawaii, spend $25 million for a supercomputer for the University of Alaska, and give $10 million to the National Biomedical Research Foundation. These are but a few of the "pork barrel" items Congressmen hide annually in the defense budget, creating the illusion of far greater spending on defense capabilities than actually exists. (Williams, 1991)

2. The defense spending priorities are established by DOD, who decides the critical systems needed by the various branches of the service for procurement is also a fallacy. Congressmen with a hometown interest in a specific defense industrial plant routinely force DOD to buy systems they do not want, and claim they do not need. DOD drops them from their budget submissions, but Congress puts them right back with explicit guidance that the funds must be spent for the systems specified without delay by DOD. The latest example is the V-22 Osprey, a tilt-rotor troop transport heli-copter, which DOD says they no longer need, but was forced to spend $625 million on in 1992. (Fulghum, 1991)

3. Force structure decisions are also not left up to the defense experts at the Pentagon, who are paid to develop plans based on the nation's critical needs. The latest major disagreement involves the mix between active duty and reserve forces. The Pentagon has identified areas within the reserves that could be drastically reduced to save money without hurting the nation's capability requirements. Congress has refused to act on these cuts because of hometown sentiments, and an unwillingness to address this unpopular issue in an election year. The popular sentiment in Congress is they need to make cuts, but in someone else's district and not their own. This blatant attitude totally disregards the nation's critical needs.

These are but a few of the misconceptions which surround the defense budget. Many more exist which should be addressed and made clear to the nation. Just as an example, there has been no discussion of the impact on minority youths who have used military service as a means to escape poverty and get a college education. With a smaller force structure will they still get this opportunity? The complexity of the issues involved have still not completely surfaced!

Common Sense Approaches For The Future

The facts of the situation dictate that the nation must take advantage of this opportunity to reduce defense spending to more reasonable levels. The arms race is over, and it would be foolish for the U.S. to continue spending beyond its means for defense capabilities that are not needed. At the same time, the military build-up of the 1980s produced what is most likely the world's strongest military. It is not in the nation's best interest to let it crumble and return to its poor state in the 1970s. The responsible course for the future is to restructure the force based on the best possible assessment of critical needs to defend national interests around the world.

These words are easy to say, but will prove very difficult to put into action because of the vast divergence of opinion among experts as to what the critical needs really are. The Persian Gulf War brought home the fact that the world is still a dangerous place, in which regional wars can erupt at anytime. The complexity of the situation will ensure the controversy lives on for many years to come.

However, in addressing the situation several common sense, logical steps can be taken to reduce the complexity, and restore faith in the nation's leadership. The first step is purify the defense budget by taking all nondefense related spending out of it. It is time to stop hiding hometown, special interest spending in the defense budget, while complaining at the same time about DOD's budget being out of control. This step could be accomplished by passing legislation requiring all attachments to a bill be germane, as has been previously proposed. An alternative would be to grant the President line item veto power to weed out the special interest spending.

The next step would be to give DOD more power and freedom in deciding how to spend the defense budget. The Pentagon is supposed to be manned by those who are considered the true defense experts of the nation. They are in the best position to accurately assess and determine the nation's critical needs. These experts are highly paid to perform these duties. If these experts are not trustworthy, they should be removed from their positions and replaced with experts who are dependable. The nation is paying them to do a job, and

it is time they be given the responsibility and authority to do that job. The current practice of forcing DOD to procure systems they do not want or need is a foolish waste of taxpayer dollars.

The current planned reductions in force structure, procurement, and personnel appear prudent in the face of the current global environment. The call for increased reductions and faster time tables at this point seem premature, and could do more damage than good in the long-run. One of the major complaints of businessmen in the U.S. is the lack of ability to plan long-term due to constant changes in governmental policies. Industries affected by defense cuts have reacted to the planned cuts, and are restructuring accordingly. To pull the rug from under them and change everything again before they have time to adjust to the current environment would be a grave mistake.

The best approach to defense budget planning for the present time is to adopt a unified consensus for the nation's needs over the next five years, and then to stick to it. The most urgent need for the defense community, and the economy in general, is a sense of stability. The daily threat of increased cuts and

uncertainty of the operating environment only make the situation worse.

Other areas of concern in the study would also be best served by policies aimed at returning stability to the economy. The question of assisting defense industry firms with conversion was best answered by the industry leaders. Their desire to be left alone to plan and manage their future should be respected. Their suspicion of the government's offer to assist was well founded, as evidenced by the proposal for them to fund the assistance by a special tax levied on their defense contract revenues. The truth is the funds would be better spent left under their control than the government's control based on past performance.

Stability would also be enhanced by sticking to the budget agreement to use savings from defense budget cuts to reduce the national deficit. This is an urgent national priority that must be addressed for the prosperity of future generations. The Congress has broken every agreement made in recent years to address this issue, and should finally stand firm to resolve it. This nation cannot continue to spend beyond its means indefinitely, and must control spending now.

REFERENCES

REFERENCES

Becker, G. S. (1991, February). Defense spending isn't stunting the U.S. economy. Business Week. pg. 22.

Bennet, J. (1990, February). So many officers, so little to do. The Washington Monthly. pp. 22-26.

Blinder, A. S. (1990, March). Uncle Herman and the peace dividend. Business Week. pg. 22.

Bond, D. (1992, February). U.S. defense budget cuts to curb acquisition of new systems. Aviation Week & Space Technology. pp. 20-24.

Borrus, A. (1991, November). Congress drops a bomb on defense. Business Week. pg. 41.

Budiansky, S. & Auster, B. (1991, October). Missions implausible. U.S. News & World Report. pp. 24-31.

Costello, R. B. (1992, January). U.S. needs vision and leadership to develop a new industrial policy. Aviation Week & Space Technology. pg. 59.

Deady, T. (1991, April). Aerospace 'job shops' diversify to survive cuts in defense budget. Los Angeles Business Journal. pg. 19.

D'Innocenzio, A. (1990, May). Military cuts dent apparel pacts. Women's Wear Daily. pg. 33.

Donnelly, T. (Ed.). (1992, April). Winning the first battle. Army Times. pg. 23.

Duffy, M. (1991, October). Much less than meets the eye. Time. pp. 21-22.

Eisner, R. (1991, January-February). Macroeconomic consequences of disarmament. Challenge. pp. 47-50.

Friedberg, A. L. (1991, 2nd Quarter). The changing relationship between economics and national security. Political Science Quarterly. pp. 265-276.

Fulghum, D. A. (1991, December). Budget compromise resurrects V-22 osprey. Aviation Week & Space Technology. pg. 30.

Gardner, D. K. (1990, February). What defense cuts mean to engineers. Design News. pp. 23-24.

Garfinkel, M. R. (1990, November/December). The economic consequences of reducing military spending. Federal Reserve Bank of St. Louis. pp. 47-57.

Gilmartin, P. A. (1990, May). Congress considers helping industry adapt to reduced military budgets. Aviation Week & Space Technology. pg. 131.

Gleckman, H. & Harbrecht, D. (1991, October). The brawl over peace. Business Week. pp. 40-41.

Hornik, R. (1990, February). The peace dividend: Myth and reality. Time. pg. 22.

Hughes, D. (1991, November). Saudi order to keep patriot line open as performance in Israel is questioned. Aviation Week & Space Technology. pg. 38.

Jacobs, C. & Deady, T. (1991, September). Survival of the fittest for L.A. defense firms. Los Angeles Business Journal. pp. 1, 56.

Kandebo, S. W. (1990, September). Commercial sector no longer able to absorb laid-off defense workers. Aviation Week & Space Technology. pp. 58-59.

Klein, L. R. (1990, March-April). The economics of turning swords into plowshares. Challenge. pp. 18-26.

Koretz, G. (1991, October). Defense cuts deliver a body blow to factory jobs. Business Week. pg. 18.

Levinson, M. (1990, Spring). A peace dividend for the U.S. economy? Dissent. pp. 140-142.

Mann, P. (1991, September). Brookings says pentagon budget should be cut 33%. Aviation Week & Space Technology. pg. 26.

Matthews, W. (1991, December). Panel cries foul over appropriations. Army Times. pg. 14.

Meckstroth, D. J. (1992, January). Defense reduction and U.S. manufacturing. Business Economics. pp. 49-54.

Miller, C. (1990, June). Contractors fight for share of smaller defense market. Marketing News. pp. 2, 17.

Paul, W. F. (1990, May). Contractors, pentagon must restore trust to preserve defense industry. Aviation Week & Space Technology. pp.134-135.

Prewitt, M. (1990, March). No "peace dividend" here: Defense cuts hurt contractors. Nation's Restaurant News. pp. 7, 14.

Schine, E. & Ellis, J. E. (1991, October). For weapon makers peace is hell. Business Week. pp. 42-43.

Smith, L. (1990, June). What we really need for defense. Fortune. pp. 161-168.

Taylor, H. (1991, February). Uniforms in step with defense cuts. DNR. pg. 8.

Ullman, J. E. (1991, August/September). Building a peacetime economy. Technology Review. pp. 56-63.

Velocci, A. L. (1992, January). Aerospace jobs decline as firms seek new efficiencies during downturn. Aviation Week & Space Technology. pp. 57-58.

Voorst, B. V. (1990, May). Who needs the marines? Time. pg. 28.

Weidenbaum, M. (1991, January). Policy decisions for a post-cold war economy. Business Economics. pp. 31-33.

KOREA INCORPORATED:
A CASE STUDY OF
A NEWLY INDUSTRIALIZING NATION

A Designated Paper

Presented to

the Faculty of the Department of Technology

East Tennessee State University

In Partial Fulfillment of

the Requirements in Strategic Management

for the Degree

Master of Science in Technology

---

by

Christopher J. Addison

August 1992

STRATEGIC MANAGEMENT ANALYSIS OF SOUTH KOREA.

Purpose. To provide an assessment of the economic development of the Republic of Korea using a strategic management framework.

Procedure. This study was based on research conducted through the East Tennessee State University Library.

Conclusion. The Republic of Korea achieved phenomenal economic development by exploiting national competitive advantages based on factor conditions. Their ability to sustain those advantages, and to compete solely on factor conditions, has greatly eroded, however. To their advantage, they have invested heavily in their future, particularly in knowledge and infrastructure resources. Yet, their future success is still in jeopardy as they face the challenges of the 1990s.

.....

This paper was prepared and accepted in fulfillment of the research paper requirement in the designated course Strategic Management, under the non-thesis option.

Dr. Jean Garner Stead

TABLE OF CONTENTS

CHAPTER 1

Introduction

Purpose of the Study

The purpose of this study was to examine the industrialization of the Republic of Korea using a strategic management framework. The framework used for the study is based upon Michael Porter's new paradigm, as outlined in his work The Competitive Advantage of Nations, published in 1990. Porter developed this new paradigm to provide a more comprehensive and detailed explanation of the forces at play in the modern global competitive environment. The technological advances of the modern era have made the international market place an extremely complex environment, that cannot be adequately explained and understood using the old paradigms. Porter's theory is based on the fact that nations do not compete with each other in the market. Nations merely serve as the home base support for their industries that compete globally. To understand why a nation's industries are successful in specific markets requires analysis of the advantages the nation's home base support provides for that industry.

Significance of the Study

Globalization of competition and markets has become a reality faced by all American firms, regardless of size. This fact has forced corporate America to rethink their basic corporate and business strategies to compete effectively and survive. The process of formulating effective corporate strategies in today's world requires firms to focus much greater attention on their foreign competitors and markets. Many firms are continuing to focus solely on domestic market competition, and they are suffering significant losses in their market share as a result.

Management expert Tom Peters (1990) discusses the new realities of globilization of markets in his recent work. The fact is that all American firms face the threat of global competition no matter how small they are, or what their business is. The sophistication of modern technology has made the world smaller because of highly advanced telecommunications and transportation networks. The ability to communicate with virtually any area of the world instantly, or to travel anywhere in the world within 24 hours, has made modern business a much more complex endeavor. Work relationships, that were once impossible to facilitate due to vast distances

between locations, are now commonly carried out using the latest technology. (Peters, 1990)

Information technology has played a leading role in globalizing the world economy. Information is a primary source of power in most businesses, since it drives the decision-making process. Advances in technology, such as satellite communications, fiber optics, high speed fax machines and computers, microwave relay stations, etc., have made global information instantly available to managers. Unfortunately, the burden of assessing all of this additional information has actually made the typical manager's life a much more complex ordeal. (Peters, 1990)

To see the complexity of the modern business world one only needs to look at the automotive industry. Everyday it becomes harder and harder to distinguish where a particular car was actually built. Japanese cars are being built in America, with primarily Japanese parts, while American cars are being built in Japan, Canada, Mexico, and Europe. Even American cars built in the U.S. are frequently found to have Japanese built engines, or other foreign parts in them. The future trend is for more firms to enter joint ventures with

foreign competitors, making distinguishing one nation's products from another even tougher. (Peters, 1990)

To add further to the complexity, the rate of technological change is expected to continue to speed-up, making already shortened product life-cycles even smaller. To compete successfully in the global market will require huge investments in product innovation, and vast improvement in reducing product development times by American firms. The successful firms will be those that can get high quality, innovative products on the market in the shortest amount of time. (Peters, 1990)

Differences in a nation's economic structure, values, culture, history, and institutions still profoundly contribute to competitive success in the global market. Home nation support has actually grown in importance, a fact not readily obvious to most observers. To be globally competitive a nation's scarce resources must be effectively used to maximize production. Productivity growth over time is a must to remain competitive. Technological innovation provides the key to the desired level of growth in productivity. The home nation still provides the skills and technology that underpin the competitive advantages of their industries. They must actively work to support the

creation of new technologies, and to sustain the competitive advantages they currently enjoy. (Porter, 1990, pg. 19)

So why is the study of Korea important? As Porter (1990) noted in his work, Korean industries are emerging as major players in the global market. From their modest start as a producer of low cost textiles and apparel, Korean firms have rapidly expanded into a vast array of enterprises, that includes automobiles, semi-conductors, electronics, shipbuilding, construction, and pharmaceuticals to name a few. Their impact is being felt in virtually every segment of the U.S. economy. At the same time U.S. firms were losing their international competitiveness, Korean firms were achieving phenomenal growth. American firms watched their shares in both the domestic and foreign markets decline, while Korean firms made significant advances. When Korea achieved its first trade surplus in 1986, American firms finally took notice of the competitive threat Korean firms pose, and they must now meet this challenge in the global market.

Definitions, Assumptions, and Limitations

Definitions. In addition to commonly used business and economic terms, this study makes use of a number of strategic management terms from Michael Porter's (1990)

work. Understanding of this study, therefore, requires knowledge of the definition of these terms as they were applied. Porter's definitions for his determinants of competitive advantage are as follows:

Factor Conditions. A nation's position in terms of factors of production, such as skilled labor, physical resources, educational system, infrastructure, and capital. These are the factors that are identified as critical to a nation's industries ability to compete in a given market. (Porter, 1990, pg. 74)

Demand Conditions. The nature of demand for an industry's products or services in their home market. Demand conditions include both the level of demand and the sophistication of consumers in the market. Domestic demand shapes the perception of firm's in interpreting and responding to consumer needs. The quality of demand is considered the most important factor, because it drives the firm's rate of technological innovation, and it forces firms to place more emphasis on the quality of their products. (Porter, 1990, pg. 86)

Related and Supporting Industries. The presence or absence of supplier or related industries in the home market, that are globally competitive. (Porter, 1990, pg. 100)

Firm Strategy, Structure, and Rivalry. The conditions within a nation that govern how firms are created, organized, and managed, to include domestic rivalry between firms. (Porter, 1990, pg. 114)

The other business and economic terms used in this study were all applied in their common context, and do not merit further definition within this study. The only other definitions required are for two Korean terms used, that were defined as follows:

Chaebol. The Korean term for octopus that is commonly used to describe their large, multinational conglomerate groups. (Lee, Yoo, & Lee, 1991)

Nordpolitik. The term used to describe Korea's new diplomatic relations program with former communist bloc nations. (Park, J. 1990)

Assumptions. The following assumptions were made in conducting this study:

a. The East Tennessee State University Library was assumed to be an adequate source for acquiring reference material for this study, either through their internal sources or the interlibrary loan program.

b. The reference material reviewed was assumed to be professionally written, without bias or prejudice.

The authors of the material used consisted of both Koreans and Americans, that provided perspectives from the viewpoint of experts from both nations.

c. The reference material reviewed was assumed to accurately represent the total population of material published on Korea's economic development.

Limitations. As stated previously, the major limitation that impacted this study was the availability of research material through the East Tennessee State University Library. General information on Korea's economic development was deemed adequate; but, information on Korea's individual chaebol groups was insufficient to do a detailed strategic analysis on each group. For example, financial reports from the stock market, and the annual company reports prepared for stockholders were not available. The analysis of firm strategy and structure was limited to Korea's four largest chaebols, due to time and resource constraints.

Methodology

The method used for conducting this study involved reviewing all available research material, classifying relevant material based on the chosen strategic management framework and the specific topics addressed by the

article, and assimilating it into a comprehensive study of Korea's competitive advantages. Some of the articles reviewed were not used because they were repetitive, or they lacked sufficient content to provide additional data for this study. The literature review, presented in Chapter 2, is based entirely on the research material used, as cited throughout the text.

The Summary Findings and Conclusions, Chapter 3, are based on the research findings. The intent of this chapter was to analyze the findings of the literature review, in order to make an assessment of Korea's competitive advantages and problem areas. The other major objective of the this chapter was to look at the future prospects for Korean industries in the decade ahead.

The major sources of reference material used to conduct this study consisted of research journals, and news articles from various business, economic, and general news publications. In cases that sources conflicted in their reports, more weight was given to the research journals that documented and supported their conclusions.

The starting point for conducting the study was to establish its framework using Michael Porter's new paradigm, as described in his book The Competitive Advantage of Nations. This reference source proved to be the most useful for providing the needed framework to present the information in a logical, meaningful manner. Porter's framework takes into account the growing complexity of the newly emerging global economy, making it possible to perform a more thorough analysis in that all factors are considered. Porter's new framework recognizes that the assumptions of old paradigms, such as every nation having equal access to the same technology, no differences in economies of scale between nations, no distinction in quality between products of different nations, and a fixed pool of resources within nations, are no longer valid in a dynamic world economy that thrives on constant change. (Porter, 1990, pg. 12)

Additional sources of material on strategic management came from the Academy of Management Executive, the Management International Review, the Management Review, and Planning Review. These sources provided additional information on current trends in strategic management issues, as well as, information on the impact of the

globalization of the world economy on strategic management processes.

The primary articles used to obtain research data on Korea came from The Journal of Developing Areas, The Journal of Social Studies, American Economic Review, Comparative Studies in Society and History, Finance & Development, and Asian Survey. Articles from these publications provided very detailed information on Korea, supported their conclusions with research data, and provided a methodical approach for arriving at their conclusions. Another advantage of these articles was that their findings and conclusions were less likely to be biased, since they provided supporting evidence.

The remainder of the research material came from publications such as The Economist, Business Week, Forbes, Fortune, Newsweek, U.S. News & World Report, and Business Horizons to name a few. These sources were valuable for filling in the voids between research articles, and for bringing information more up to date. These publications also provided the major source of specific information on individual Korean Chaebols, since the research publications addressed the chaebols in general terms. The major drawback of using these

sources of information was their lack of presentation of the research data used to support their findings and conclusions. Information was compared between articles to assess consistency, and was eliminated from the study if it appeared questionable.

CHAPTER 2

Review of Literature

Brief Historical Background

The Republic of Korea, as it exists today, is best understood when considered in the context of its modern history. The starting point selected for conducting this study was the period of Japanese occupation of the Korean Peninsula. This period, along with World War II and the Korean War, proved to be the major factors that shaped today's Korea.

From 1910 until 1945 the Japanese occupied and ruled Korea under a military dictatorship. In theory, the people were ruled and treated the same as the Japanese people. In truth, the Korean people were treated subserviently by the Japanese. Examples of the poor treatment included the prohibition of publication of Korean newspapers, the prohibition of the formation of political or intellectual groups, and their treatment as a conquered nation by the Japanese ruling class. (Burge, 1981, pg. 18) By 1937 Koreans were forced to use Japanese surnames, to speak only in Japanese, and were forbidden to teach their history. (Decar, 1988)

The relevance of this period in Korea's history can still be seen today in the attitude of the Korean people

toward Japan. The Korean people resent the way they were treated by the Japanese, and openly express their hate and distrust for them. As the only non-communist neighbors in the region, the expectation of close ties between them has not materialized because of this resentment. Even today the Korean resentment for Japan remains very strong. (Lee, 1988)

Near the end of World War II the former Soviet Union launched a surprise invasion of Korea, that altered their fate forever. The Japanese military was depleted from their war with the U.S., and they lacked the desire and resources to defend Korea. Japan surrendered unconditionally on August 15, 1945, and completely withdrew from Korea. (Burge, 1981, pg. 19)

Prior to this invasion, the U.S., Britain, and China had agreed to make Korea free and independent after the Japanese withdrawal. The purpose of the invasion was clearly to gain influence over the future fate of Korea, however. It was ultimately decided to set-up an international trust to govern Korea until an independent Korean government could be formed and implemented. To keep the Russians from occupying the entire Korean Peninsula, the U.S. suggested dividing it

at the 38th parallel, with Russia to only occupy the Northern half. (Burge, 1981, pg. 19)

A plan was drawn up in that Korea was given five years to form their own government. During this time the U.S. maintained peace-keeping and assistance forces in the South, while the Soviets maintained the North. On August 15, 1948 the Republic of Korea declared their independence and implemented their first independently elected government. About one month later, North Korea announced their own government and declared rule over the entire peninsula. (Burge, 1981, pg. 20)

The government of South Korea was forced to decide whether to remain under the provisional government until the differences could be resolved, or to go forward with their independence as a separate country from the North. They decided to go forward due to the pressing economic problems they faced, that needed immediate attention. The Russians cut-off all communications and interactions between the North and South, that made the temporary split of the Korean Peninsula permanent. The division of Korea divided their raw materials and markets, since most of these resources were concentrated in the North. The South was left with only a few light industries, and

very few products that were exportable. (Ihm, 1988)

The South also experienced a huge growth in their population. The end of Japanese rule brought a million workers back from Japan, who were forced to work there in place of soldiers during the war. Almost two million more came down from the North to escape the oppression of the communist regime being built there. Many more returned from China and Manchuria, where they had fled in order to escape the Japanese oppression. The birth rate also increased, with births exceeding deaths by 3.1%. Food soon became scarce, and the shortages led to runaway inflation. About half of the population was unemployed. (Burge, 1981, pg. 25)

Shortly after the U.S. occupation forces were withdrawn from South Korea, North Korea launched an attack against the South. With Soviet assistance, the North's political and military structure had developed much more rapidly than the South's. The army of the North was well-trained, and was equipped with Russia's best technology. They met very little resistance from the South, and quickly gained control of it. (Burge, 1981, pg. 26)

The North's plan would have easily succeeded had the U.S. not intervened. They believed the U.S. would

not return to defend South Korea, and that its strategic importance to the U.S. was not worth a confrontation with the Russians. This proved to be a major mistake on their part. President Truman decided the U.S. had to make a stand to stop the spread of communist aggression around the world, and defending Korea proved to be that stand. (Burge, 1981, pg. 26)

The details of the war were not significant to this study, but the results were. By successfully defending South Korea and restoring their pre-war borders, the U.S. gained considerable favor with the Korean people. This is significant since most Koreans were very much anti-American following the end of the five year period of American occupation. Equally important is the fact that the defense of South Korea has never ended, and it continues today. The war never officially ended, and is only in a state of cease-fire even today. The border between the North and South remains heavily armed, and has been defended by both sides since the cease-fire began. (Shin, 1988)

The war devastated South Korea, and destroyed most of the country. The only section of the country not destroyed was Pusan in the Southeast, that was never

invaded by the North. Conservative estimates of the destruction of the war suggest that 50% of the manufacturing base, 40% of the homes, and 20% of their schools were destroyed. (Ihm, 1988)

The U.S. provided massive economic aid to Korea after the war. This effort averaged $270 million per year from 1953 to 1958. By 1958 Korea had stabilized and the government shifted their focus to increasing production. Emphasis was placed on power generating plants, construction materials, and textiles to meet their most urgent needs. (Burge, 1981, pg. 31)

The gross national product (GNP) rose an average of 5.5% between 1954 to 1958. Industrial production grew even more rapidly, averaging 14% growth per year. After 1958 U.S. economic aid was significantly reduced, that led to tighter fiscal policies, and a shortage of imported raw materials for their factories. (Lee, 1988)

Factor Conditions

Human Resources. In 1962 Korea embarked on its industrialization plan by capitalizing on an abundant, highly disciplined workforce, that was more than willing to make the sacrifices required to turn around their dire economic conditions. The Koreans are characterized

as among the world's most industrious and dilige t workers. (Ihm, 1988) With their traditional Confucian values of hard work, attention to duty, putting collective goals ahead of individual desires, and reverence for education and wisdom, Koreans were destined to overcome their decades of economic deprivation. (Decar, 1988)

The Korean government recognized the need to create employment to pull the population's standard of living above poverty levels and to end their dependence on foreign economic aid. The government also realized the population was willing to work long, hard hours to improve their situation. However, the major drawback was they lacked the job skills and training needed to embark on mass industrialization. (Bae, 1989)

The government's solution to the problem was to rapidly industrialize the nation in low technology, labor-intensive industries, such as textiles. The main goals were to provide education and training in basic manufacturing concepts, and to provide the foundation for growth into more highly sophisticated industries in later years. The workforce was mobilized from the poverty-stricken rural areas of the nation to the two

main areas to be industrialized, Seoul and Pusan. The process of industrialization caused a turbulent labor market in Korea. However, the successful development of Korea is most often attributed to the mobilization of the rural workforce to the factories. (Bae, 1989)

The area of wage growth during the development of the labor market was a key concern to the government. The primary competitive advantage of Korean exports was the low cost wages paid to workers relative to other nations. From a statistical standpoint, Korean wages grew at a record pace throughout their development, despite the repression of unions and an unlimited supply of labor. From a base of 100 in 1970, wages increased to 238 in 1979. In other nations it typically took 70 years to increase wages 150%, while in Korea it was almost accomplished in just 10 years. In their best decade, 1969 to 1979, wages increased an astounding 250%. (Amsden, 1989)

Over the period 1965 to 1984 wages for production workers increased faster than professional, technical, and management salaries. Hourly wages averaged 2% growth per year, while salaries only averaged 1.5% growth. The bulk of the production worker pay increases

resulted from the big construction boom in the Middle East at this time. An estimated 27% of the male workforce left Korea on these construction projects, that created a tight labor market until the boom ended in the 1980s. (Amsden, 1989)

Productivity of the labor force grew even faster than wages in every year except 1976 to 1979, and 1982. The government, concerned about the country's standard of living, pressured firms to share their increased wealth with employees, that helped to explain the huge wage growth. The rapid growth in productivity supported the wage growth achievements. (Amsden, 1989)

From a statistical standpoint, the growth in wages in Korea appeared impressive. In reality, there were a number of conditions that made this wage growth much less impressive than it first appeared. In 1962 Korean wages were among the lowest in the world, so they had a lot of room for improvement. Firms were able to rapidly increase wages as a motivational tool without hurting their international competitiveness very much. Another key factor was the length of the Korean work week. The average Korean work week was 54 hours, meaning that when weekly wages were coverted to hourly wages the gains

were much smaller. Koreans became accustomed to working long hours during Japan's occupation. (Amsden, 1989)

When the labor market was segmented by gender, firm size, and industry the wage growth rate was found to be even less impressive. Korea was recognized for setting world records in wage rate discrimination against female workers. In 1980 they had the world's largest male-female wage gap, of that 60% was attributed solely to gender. Korea has made significant progress in eliminating discrimination in education, but there were still virtually no women in management positions in the manufacturing sector as of 1988. (Amsden, 1989)

Wage rates in Korea are based on education and training, rather than demonstrated skill. Korean firms recognize that experience and job training increases the market value of their employees. They use pay to reduce worker turnover and retraining expenses for workers who acquire scarce skills. Instead of pay raises, in most cases skilled workers are rewarded with a greater share of overtime to increase their earnings. This also benefits the firm since using overtime reduces their need for additional skilled workers. Korean workers are not systematically upgraded in their jobs over time.

Most workers stay at their initial job level until they upgrade their skills through additional education and training. (Bae, 1989)

Developments within the Korean labor market were dramatic following the 1987 democratic reforms of President Roh. In 1987 there were over 3,000 labor strikes in Korea in what was considered the nation's first real labor movement. The democratic reforms opened the door to the creation of real labor unions, and legalized collective bargaining and worker strikes. (Nakarmi, 1987)

The newly created unions, headed by inexperienced young workers, took a radical approach to labor negotiations. They demanded rapid wage increases and relaxation of the military type work environments. Approximately 31% of Korea's 5 million workers belonged to the new unions, that replaced the former company unions. On the positive side, workers were willing to work longer hours to make up lost production when they returned to work. However, firms were concerned about the impact of the higher wages on their competitiveness. Most firms were looking to modernize their plants, using more capital intensive manufacturing methods and less labor. (Nakarmi, 1987)

By 1988 average income in Korea had increased to $5,000 per year. The government ordered firms to keep future pay raises below 10% in response to declining competitiveness of exports in international markets, high inflation rates, and increased consumer spending on imports relative to declining exports. However, the worker strikes continued and wages increased up to 50%. The attitude of workers had changed drastically from their previous willingness to make self-sacrifices. The 54 hour work week, boot-camp like work conditions, and the lack of vacations were all attacked in labor negotiations. Roughly 640 strikes caused firms to lose billions of dollars. (Maass, 1989)

Conditions continued to worsen in 1989, and some firms dependent on low labor costs to compete in foreign markets began to move their operations to other nations. The government continued its hard-line push to hold pay raises to 10%, and increased their efforts to stop violent worker strikes. The government started intervening in industrial relations again, and forced strike settlements on both sides. Firms continued to invest heavily in changing their operations to capital intensive ventures, thus decreasing their need for labor. (Powell & Bank, 1990)

The starting point for understanding Korean management systems is understanding the traditional values of the people. The cultural value of kinship groups led to a predominantly patrimonial management system. It is not unusual for firms to start out as family enterprises as they did in Korea. Over time the need for professional management normally replaces this system, since the family cannot continue to provide all of the competent managers needed. (Kim & Kim, 1989)

Of Korea's top 97 chaebols, 69 are still managed by their founder. Among top executives, 345 were found to be related to the founder by blood or marriage, of that only 12 were women, 7 wives and 5 daughters. Less than half of the founders completed high school, or had a college education; yet, the founders were found to dominate the chairman's position, and most served as president of at least one subsidiary company. The 345 patrimonial executives were more highly educated, due to their privileged status. They typically held the highest positions in the chaebol, such as vice-chairman or a company president. Sons of the founder are usually very high in the company hierarchy. (Kim & Kim, 1989)

Of the non-patrimonial executives, only 13% held a position as high as a company president. The majority were found to be in lower-level director type positions. The strength of these managers is found in their numbers. The continued growth of the chaebols has forced the founders to recruit more outside managers. This trend is expected to continue, and eventually will open the higher level positions to these managers. However, the very top positions are expected to remain within the founder's family. (Kim & Kim, 1989)

Family members who play a major role in the management of a typical chaebol include brothers, uncles, son-in-laws, and brother-in-laws, who all hold top management positions. Hyundai serves as a good example. Of the founder's 7 sons, 5 sons hold management positions as president over 10 companies. A brother of the founder is president of Hyundai Motors. Upon the death of the founder, one of the sons normally takes over as chairman. Of the major chaebols, only Daewoo had just one family member in management, the founder's wife. (Chang, 1988)

In recruitment of other management employees, alumni relationships are considered very important.

Founders are most likely to hire graduates from the high school or university they attended. In order to get a management position in a major chaebol it is mandatory to have attended one of Korea's three elite colleges. Seoul National University alone accounts for 62%, and along with Yongsei and Korea University, accounts for 84% of chaebol executives. (Chang, 1988)

Korean chaebol founders also show prejudice in hiring persons from their home region of Korea. They cite differences in behavior, attitude, and values as reasons they prefer hiring employees from their home region. They believe these employees are more loyal and committed to the firm. (Chang, 1988)

A key ingredient needed to be a successful chaebol founder is the ability to maintain good relations with the government. One way to stay in favor is to provide management positions to former government officials, military leaders, and financial officers. Chaebol founders are required to interact frequently with government, and therefore, have to become skillful in manipulating politicians to succeed in executing their plans. (Chang, 1988)

Korean management philosophy is quite different from Japan's. Korean firms do not widely practice the concept of lifetime employment, and they have a much more highly mobile workforce than either Japan or the U.S. Employee turnover in Korea was 6.4% in 1990, compared to 4% in the U.S., and only 1.3% in Japan. The number of management personnel recruited from outside the firm, 40%, was much higher in Korea as well. (Lie, 1990)

In Korea the level of education played a much more important role in determining wage rates than seniority. The difference in wages between college graduates and high school graduates in Korea was 50%, compared to only 20% in Japan. Korean firms also have a lot more executives in their forties than Japan. Top executives in their forties were hard to find in Japan, while in Korea 65% of the executives of the 100 largest firms were in their forties. Finally, unions in Korea were found to be a lot less developed than in Japan. The growth of unionization in Korea is following the Western pattern of being based on industry, rather than being company based as in Japan. (Lie, 1990)

The Korean Chaebols have suffered from management weaknesses in planning, providing services, and international marketing. When they lost their competitive advantage of low wages, they were forced to compete in more complex industries requiring greater expertise. One Korean Chaebol estimated it would take 10 years of training to get the management expertise they currently lacked. The lack of skilled managers has helped to open more opportunities to female managers; but, most of the opportunities are with Western firms located in Korea. (Worthy, 1991)

Long-range, strategic corporate planning in Korean firms is a major weakness. The concept is not widely accepted and practiced. The only ones found to have long-range strategic plans were the very largest firms, while over 75% of American and Japanese firms have them. The lack of use of long-range planning in Korea is attributed to their belief that it serves no useful purpose, since the uncertainty of future events cannot be systematically managed. They prefer to concentrate on the short-term, since they feel more confident in their ability to predict outcomes that way. In truth, Korean firms were viewed as lacking the skill and

knowledge needed to assimilate and analyze data when faced with uncertainty. (Rho, 1987)

Korean firms that had a strategic plan used a bottom-up approach in preparing it in most cases. The plans tend to be used more as a direction setting tool, rather than as a planning tool. The final plans are typically assembled by a planning department for final approval by the founder. The plans are based on a five year time-frame, although several firms also had medium-range three year plans. This is particularly true in the construction industry, that faces a much more volatile environment. (Rho, 1987)

The plans examined concentrated on either goal setting, or specific projects the firm planned to accomplish. Goals were set in terms of market share, growth, and sales volume, as opposed to profits. Growth appears to be a much more significant goal to ensure corporate survival, rather then the financial goals held up to paramount importance in Western firms. The long-range plan is implemented through a series of one year plans, and is constantly revised in response to changes in the operating environment. The plans were not very successful, in most cases, due to the rapid changes in

the Korean economy. Korean managers failed to translate their goals into action plans to achieve those goals, as well. Korean managers are also considered weak in conducting reviews to determine their progress toward achieving their goals, and they provide no incentives, such as bonuses, for goal accomplishment. (Rho, 1987)

Physical Resources. South Korea is located below the 38th parallel on the Korean Peninsula of Southeast Asia. It is bordered on three sides by sea, with its only neighbor by land being North Korea. China is located across their Western shore, while Japan is their only neighbor across the Eastern shore. The total land area Korea covers is roughly 38,023 square miles, much of that is mountainous and unusable in the Northern and Eastern parts of the country. In terms of comparison, Korea is about equal in size to Virginia. (PC Globe, 1990)

As of 1990 Korea's population had grown to over 44 million people, with an annual average growth rate of 1.3%. The population is expected to exceed 50 million people by the year 2000. The population density in 1990 was 1,140 people per square mile, that does not take into consideration the vast land areas that are not

inhabitable. The majority of the population, roughly 70%, live in Korea's major urban areas. The age distribution of the population shows a concentration of youth, with over 60% of the people being less than 30 years old. (PC Globe, 1990)

Korea's largest metropolitan area is Seoul, with a population exceeding 10 million people. Their second largest area is the nation's major seaport city, Pusan in the Southeast, that has over 3.5 million people living there. Other major cities with over a million inhabitants include Taegu, Inchon, Kwangju, and Taejon. These figures are impressive since Pusan was the only city not destroyed by the Korean War. (PC Globe, 1990)

The permanent division of the Korean Peninsula left the South poor in natural resources. The Northern half of the peninsula is far richer in natural resource deposits than the South. Natural resources available in the South include coal, tungsten, iron ore, limestone, kaolinite, graphite, zinc, and lead. Compared to other nations, Korea's deposits of these minerals are quite modest. With the exception of tungsten, the vast majority of these materials are used by their domestic industries. (PC Globe, 1990)

Looking at energy sources, Korea is heavily reliant on imports to meet their needs. Their only resource in this area is coal, and in the not too distant future this resource will also be exhausted. Korea has no natural gas or petroleum resources, and depends entirely on imports for these materials. With respect to electricity, Korea depends entirely on their nuclear power plants for meeting their needs. They also must import the energy resources needed to operate these plants since they lack them internally. Korea's dependence on energy resource imports from other nations is a major contributor to their annual national expenditures on imports, and has contributed heavily to their deficits in past years. (PC Globe, 1990)

Knowledge Resources. The development of Korea's public education system played a significant role in their economic fate. They used vocational training programs to transform rural, unskilled labor assets into trained factory workers. Improvement of the public education system provided the next step, by supporting their growth into more complex industries, and providing needed professional workers. (Ihm, 1989)

The Korean government sought to resolve its lack of skilled workers by enacting the Vocational Training Law

of 1967. The law established numerous vocational training centers, public and private, aimed at developing an industrial workforce. Public centers trained workers for industries targeted by the government as strategic exports, such as textiles. Employers with over 300 workers were required to establish in-plant training programs, that consisted of six month apprenticeship programs. A third program established was conducted by social welfare and non-profit organizations to train workers in semi-skilled positions, such as secretaries and teletype operators. All vocational training programs were operated on a non-profit basis. No fees were charged to attend these programs, and trainees were given a small subsidy to sustain them during their attendance to encourage greater participation. (Bae, 1989)

The Korean vocational training programs were viewed as a huge success. Eight years into the program, Korea was rated as one of the top-ranked nations in labor skills. The programs were judged successful in both qualitative and quantitative measures. It was estimated in 1981 that the 514 centers established had trained close to a million workers. (Bae, 1989)

By 1970 most Korean youths received secondary education, and 40% went on to attend college. (Chang, 1991) As of 1988, Korea had 101 four year colleges and universities, 11 teacher colleges, and 122 junior colleges. Korea is still unable to satisfy their educational requirements internally, and they send many students to foreign schools. The Korean people embrace education as their means to eliminate poverty, to raise their standard of living, and to gain respectability. (Kaltsounis, 1988)

Korean reverence for education is rooted in the traditional confucian value of esteem for wisdom. The attendance of six years of primary school is mandatory, while three years each of middle school and high school are optional. Korea's population is almost totally literate, and they exceed the educational level of most industrialized nations. The government only pays for the first six years of school, after that parents pay 75% of the cost of further education. (Lew, 1988)

Korea places great emphasis on the quality of education, rather than just giving a form of credential. Up until 1970 entrance exams were required to proceed to the next level of education. The focus of education was

preparation for the exams for the next level, instead of high quality education. The exams were eliminated to stop the practice of coaching students for exams and to get back to focusing on quality education. (Chang, 1991)

Korean parents strongly encourage, and sometimes even force their children to get higher level education. Mothers traditionally develop close relationships with their children's teachers all the way through high school. They actively coach, guide, and tutor them every step of the way through school. Parents consider the success of their kids in school as their personal success, and they take great pride in educating their children. (Chang, 1991)

Another important aspect of the Korean economic development strategy involved their plan for technology acquisition. By entering the low technology, labor-intensive industries of light manufacturing initially, Korea was able to acquire the required technology from other countries. In the highly industrialized nations, the technology Korea sought had been used for years, and was not considered protected trade secrets. They were able to get the technology desired in most cases from the U.S. or Japan through licensing agreements, tech-

nology cooperative programs, or direct foreign investment. (Arnold, 1988)

Korea recognized the importance of developing a science and technology infrastructure in their plans. They knew their long-range plan of evolving into an industrialized nation required the achievement of a level of technological sophistication that other nations would not be willing to provide. Their rapid industrial growth created increased demand for new technologies for products and production processes. (Arnold, 1988)

The government acted to institutionalize science and technology as part of their economic development strategy. The plan in the 1960s involved building a foundation on that to support their future development efforts. The Ministry of Science and Technology (MOST) was formed, but scarce capital resources led to less than adequate support for this effort. (Arnold, 1988) Korea's early science and technology efforts can be best described as coping with the adoption and mastery of the foreign technology they acquired. (Abelson, 1988)

It was not until the mid-1970s that Korea really got its science and technology program going. The increased number of trained scientists and engineers

developed by this time allowed them to make substantial progress. They were able to move into heavy industry and the chemical industry as a result of their progress. They were still dependent on foreign technology, but they were capable of significantly improving it during implementation using their experts. (Abelson, 1988)

The Korean government's initial science and technology program was generally viewed as a failure. Their efforts to achieve self-reliance to end their dependence on foreign technology failed. Their massive spending, in both public funds and mandatory private investment programs, failed to produce new, innovative technologies. Reasons cited for the failure of their strategy included spreading resources too thin between too many different organizations, competition rather cooperation between various research and development organizations, and a lack of a sufficient number of technical experts to staff the number of organizations they created. (Arnold, 1988)

The government altered their strategy going into the 1980s. They declared science and technology an urgent national priority requiring the utmost attention. They used mergers to reduce the number of organizations,

consolidating 16 state centers into 9, with each assigned a specific area of research responsibility. The changes proved significant in improving the performance of their scientists and engineers. New products were developed, production processes were improved, and new technologies were adopted more efficiently as a result of the changes. (Arnold, 1988)

Korea's government recently passed a series of laws aimed at protecting imported foreign technology. A big concern of firms importing high technology products into Southeast Asia has been a lack of protection of their patents, trademarks, and copyrights. In the past Korea has not done much to protect the intellectual property of foreign firms, that resulted in a decrease in the import of high technology products. The government now realizes that vigorous enforcement of such laws is a necessary inducement to get the technology desperately desired. (Matthes, 1991)

Korea has achieved some noteworthy high-technology advancements. Their shipbuilding industry uses computer controlled manufacturing and is highly sophisticated by world standards. Their steel-making industry is one of the most modern and competitive operations in the world

market. They have seven operational nuclear power plants, with two more under construction, and two more being designed by Korean companies. (Abelson, 1988)

Capital Resources. In support of their five year economic development plans, the Korean government carefully managed and nurtured the financial markets. Korea's GNP growth was three times higher than other major industrialized nations over a 25 year period, the fastest growth ever achieved by a nation with a large population. However, the growth of the capital and financial markets were not equally impressive. The government control and regulation in these areas was perceived as having held back their development. (Mahler, 1990)

The government controlled over one third of all bank credit, and they enforced low interest rates to support their economic policies. Smaller businesses, not in favor with the Korean government, were forced to depend on family resources, and short-term loans on the informal "curb" market at high interest rates. The larger businesses, with government favor, relied on commercial borrowing from the banks. The Korean stock market initially was just a market for government bonds.

Corporate issued bonds did not appear on the market until 1972. (Mahler, 1990)

The first attempt to develop the Korean stock market into a capital market trading corporate stocks occurred in 1962. It proved unsuccessful because the majority of the population lacked the knowledge to participate in the market. A few speculators, with large holdings and vast knowledge of how the market operated, were able to manipulate the market. The market was forced to close for three months in 1963, and it lost its credibility for the remainder of the 1960s. (Mahler, 1990)

After the initial failure of the capital market, the government moved to make corporate stocks and bonds similar to bank deposits in order to regain consumer confidence. Corporate bonds were guaranteed by commercial banks, and corporate stocks paid fixed dividends equivalent to the rates paid on bank deposits, even when the firm did not make a profit. Frequently firms were forced to borrow funds from commercial banks in order to pay these dividends. (Mahler, 1990)

A number of other policies aimed at strengthening the capital market were also implemented. The tax rate

was significantly lower for publicly held firms, as opposed to privately held firms. Dividends were made exempt from personal income tax for most investors. Capital gains from the sale of stocks and bonds were exempted from taxes also. The Minister of Finance was given the authority in 1972 to force large firms to go public by withholding bank credit from private firms. (Mahler, 1990)

These actions succeeded in developing the market, that grew substantially after the changes in policy were made. The market experienced sharp increases in 1987 and 1988 due to a record number of new stock issues, and government selling of stocks it had held. From 1984 to 1988 the market achieved a fifteen-fold increase in total market value, and the average price-earnings ratio increased from 5 to 26. This ratio was among the highest in the world, after having been one of the lowest in the 1960s. (Mahler, 1990)

The corporate bond market in Korea did not prosper along with the stock market. As of 1989 corporate bonds were still backed by banks. They served as a means to get indirect bank loans, and their worth was based on the bank backing the bond, rather than the firm getting

the funds. The outstanding amount of bonds did increase tenfold from 1979 to 1987, because more firms used them to finance their growth. (Mahler, 1990)

The government continued to take an active role in the development and strengthening of financial markets in the late 1980s. Their efforts included support of the development of rating agencies for corporate bonds, improved auditing and reporting of financial data on public firms, limits on daily price fluctuations for each stock, and a new over-the-counter market to help smaller firms raise capital. To offset inequities in income distribution, they instituted a policy requiring new shares to be issued to poor families at below market price. This policy failed since the majority of these families sell their shares for a quick profit, rather than wait for long-term appreciation. (Mahler, 1990)

As the Korean market has developed, pressure to internationalize it has also increased. The Korean government announced plans to open their financial markets in December 1988. The plan is to be executed over four years, with the first two years to focus on expanding overseas funds for indirect investment, to increase issues of convertible bonds, and to increase

opportunities for Korean investors to invest in foreign stocks. The market is supposed to be opened to direct foreign investment in 1992. Limits will remain on the number of shares individuals may purchase, and the total amount of foreign investment allowed. (Mahler, 1990)

The government also announced plans to deregulate interest rates by 1997. The plan calls for loosening regulations in 1994, and complete deregulation in 1997 for deposit rates. The interest rate charged on loans will be completely deregulated in 1992. Corporate borrowers strongly oppose this move because they think their cost of capital will significantly increase. The government hopes that competition will drive the 18 to 20% rates down. Banks have enjoyed a 4 to 5% spread between what they pay on deposits and charged on loans. The banks fear that their profit margins will erode when they are forced to compete for loan business. Korean banks reported a 47% growth in earnings in 1990, but their return on assets of only 0.63% was low by international standards, and less than half of that of foreign banks in Korea. The poor performance of the Korean banks was attributed to a 24% increase in their operating expenses. ("Big Brother Bows Out", 1991)

Up until 1986 there was worldwide concern about Korea's ability to meet their debt obligations. In 1981 Korea was the fourth largest debtor in the world, and they maintained a debt to GNP ratio of 50%. By 1986 Korea had begun to reduce their principal balances on foreign debt, and had maintained all debt service obligations without fail. (Collins, 1990)

Korea finally achieved its first trade surplus in 1986. Their dependence on the import of raw materials and huge foreign debts contributed significantly to the chronic trade deficits until this time. This milestone provided Koreans hope that they had finally turned the corner in becoming self-sustaining, and that they could start to concentrate on reducing their huge burden of foreign debt. The trade surplus in 1987 reached $8 billion, exceeding their projection of $6.1 billion. (Ihm, 1988)

The trend continued in 1988, with exports growing 14.1% to $57.2 billion, while imports increased 11.5% to $44.7 billion. The trade surpluses had a detrimental effect, however, as Europe and the U.S. threatened to implement protectionist policies to reduce their trade deficits. The Koreans felt they were unfairly targeted,

by the U.S. in particular, since their portion of the total U.S. trade deficit was a mere 3.2%. The U.S. government applied pressure on the Koreans to stop their devaluation of the Korean won against the dollar, resulting in higher prices and less attractiveness for Korean products. (Matthes, 1991)

The U.S. government has also increased their pressure on the Korean government to open their markets to American goods, particularly agricultural products, to reduce the trade deficit. (Ihm, 1988) The tariffs charged on imported U.S. goods decreased from an average of 24% in 1986 to 13% by 1990; and, the Korean won had appreciated 24% against the dollar, that made American products much more competitive in Korean markets. (Matthes, 1991)

In 1989 the Korean trade surplus dropped to a mere $1 billion, and exports were down by about 6%. The trade imbalance with the U.S continued to be high, however, and the reported surplus in Korea's favor was $6.2 billion. The GNP growth of 6.7%, decent by world standards, was viewed as a crisis in Korea when compared to their previous performance. (Amador, 1990)

Korea had a trade deficit in 1990 of $2.1 billion, and in January of 1991 alone added another $1.8 billion. The deficits were mainly caused by a booming domestic economy hungry for imported goods, which caused imports to increase by 15%. Capital goods imported for expansion projects also increased 14%, and the cost of imported energy products went up 42%. The demand for consumer goods pushed up inflation 8.6%, which increased fears of continued pressure to raise wages. Money supply growth, that has averaged 19% per year since 1985, was blamed for inflation as well. The government was reluctant to tighten fiscal policy to fight inflation, but they were running out of options. ("Costly", 1991)

Infrastructure Resources. The Korean people were most heavily influenced by America in their modern social evolution. Korea is surrounded by hostile communist nations, except Japan, who is strongly disliked because of their harsh treat-ment of the Korean people during their occupation. Most of Korea's infrastructure, such as communications, transportation, sports, journalism, etc., was copied from American systems. (Kaltsounis, 1988) Korea's infrastructure is

sophisticated by world standards, as demonstrated during their hosting of the 1988 Summer Olympics. The fact that it has been mainly built since the end of the Korean War allowed them to implement the most modern systems. (Porter, 1990, pg. 467)

Having lived and worked in Korea for one year, personal observations of Korea's infrastructure proved quite different. Korea has built sophisticated, modern systems within their large metropolitan areas, but lags far behind the world in areas outside the major cities. For example, a lack of indoor plumbing, a lack of refrigeration in meat markets, homes heated by coal burning stoves, and unsafe public drinking water are still commonly found outside the major metropolitan areas. Korea's highway system is still underdeveloped and is extremely poor except for the major interstate they built between Seoul and Pusan.

Korea's public transportation, communications system, and ports are sophisticated. Virtually every area of the country is accessible by train, subway, or bus. Taxi service is also widely available in all areas at very reasonable rates. It is now possible to communicate with any region of country by phone, from

either within Korea or over international lines. Finally, Korea's ports have been a long time strength of the country, and they have been kept very modern by world standard's to support their export and fishing operations.

Kinship and communal obligations dominate Korea's cultural beliefs. These obligations are the most important determinant of proper behavior. Males play the dominate role, both within the family and the community. However, Korea's industrialization has weakened family ties because of the increased economic and psychological independence from the family. Even the long standing belief of social obligation dominating over personal aspirations has greatly diminished. (Lew, 1988)

Korea's rapidly changing economy has created enormous social tensions. The government successfully suppressed these tensions, "in the best interest of the nation", to achieve their economic and political goals. Korea's prosperity has resulted in a 55% growth in population over 25 years. Other results include an improved diet for the average Korean who was previously undernourished by world standards, the number of doctors

per 1,000 Koreans has doubled, the number of dentists tripled, the number of hospital beds tripled, and the number of nurses increased twelvefold. Today's average 14 year old Korean boy is 4-1/2 inches taller than his 1965 counterpart. ("A New Society", 1989)

In the 1980s Korean societal attitudes underwent major changes. The military government lost favor with the people in 1980, as a result of the Kwangju incident in that soldiers killed 200 student protestors. The heightened political unrest eroded the social discipline the government had maintained for years, and wave after wave of violent student protests erupted. Workers who had never complained about conditions and wages were suddenly expressing their discontent as well. ("A New Society", 1989)

The conditions continued to worsen until the Korean president was forced to resign in 1987. The president's resignation led to democratic reforms, giving the people true political and social freedom for the first time in their history. The reforms unleashed years of mounting social tensions on the newly formed government. The reforms led to massive labor strikes as workers struggled to improve poor working conditions caused by

the years of government repression of unions. The change of attitude in workers can be seen from the fact that satisfaction with working conditions dropped from 33 to 21% in 1988, after dramatic improvements had been made. ("The Drenching", 1990)

The social changes that occurred during this time were tremendous. The wealthy, who had hid their wealth to avoid taxation and requests for political favors, were now spending freely. Korean department stores, particularly in Seoul, were doing a booming business despite prices higher than those in London. In January 1989 people under 35 were allowed to travel abroad for the first time, which caused a boom in the airline industry. ("The Drenching", 1990)

The poor people in the farming communities and inner-cities quickly protested the unequal distribution of wealth. Farmers were heavily indebted, and they found it difficult to find labor as their youth moved to the cities in search of wealth. Even their heirs, who were expected to continue the family farm, were deserting for the city. Those who decided to stay and run the family farm had a hard time finding a spouse willing to stay with them. ("A New Society", 1989)

Looking at Korea's accomplishments, GNP growth provided the most significant indicator of just how impressive they performed. From 1962 to 1990, GNP per capita grew from under $100 to $5,230. Total GNP rose from $81 billion to $223 billion in the same period. The real GNP growth rate over the entire period averaged 6.5% per year. Their GNP growth averaged 13% between the years 1962 to 1988, exports grew 500 times, and employment doubled. (Matthes, 1991)

Exports averaged 35% growth through the early 1980s, with manufactured goods increasing to 90% of exports from 20%. Export volume increased fourfold in the 1960s and tenfold in the 1970s. The average unemployment rate during this time of 4% was among the lowest in the world for industrialized nations, and inflation was held below 3.5% up until 1986. (Ihm, 1988)

Hosting the 1988 Olympics served to boost Korea's national pride. Nationalism reached new highs, with increased interest in Korean history and culture. The Olympics provided Korea the opportunity to show the world had far they have come since the end of the Korean War. The world's spotlight provided them the chance to gain the recognition and respect they desperately

sought. At the same time, their anti-American and anti-Japanese sentiment was growing, that helped to fuel their competitive spirit. ("A New Society", 1989)

Demand Conditions

Through the mid-1970s the government's policy of favoring exports over imports made consumer goods very scarce. People saved their money because goods were not available to buy. When consumer goods finally became available, Koreans bought everything in sight. For example, by 1985 virtually every home had a TV and most had a washing machine. ("A New Society", 1989)

The size of Korea's domestic market, in excess of 40 million and growing, presents a significant chance for domestic firms to compete internally. Thus far, however, domestic demand has had little influence on Korean industry. Their concentration on exports left the needs of the domestic market largely ignored. This attitude is changing thanks to the increased domestic consumer spending in recent years, but for the most part domestic consumers are not sophisticated buyers. They tend to seek basic products to meet their needs, and fail to distinguish quality and innovation of products in making their choices. As income increases, Korea's

consumers should develop greater sophistication, that will help their industries. (Porter, 1990, pg. 469)

"Korean Yuppies", young professionals, have 5 to 20 times more buying power than Korea's blue collar workers. In 1990 it was estimated that approximately one million yuppies live in Seoul, with average earnings of about $31,000 per year. Even though these earnings are far less than that in other industrialized nations, it is much higher than Korea's national average, and it is growing by over 15% per year. The number of yuppies doubled in the past 10 years, making it the fastest growing segment of the market. (Worthy, 1990)

These yuppies represent the new "me generation" in Korea, that were not exposed to the hardships of the past. They grew up in a period of economic prosperity and opportunity. The days of their parent's frugality appear to be gone with the memories of the hardships. The priority of owning a home has taken a back seat to the new first priority of owning a car. Activities such as skiing, golfing, vacationing abroad, etc., are the new priorities of the modern lifestyle. (Worthy, 1990)

Outsiders seemed perplexed at how the "Korean Yuppies" can spend so much with income of only $30,000 a

year. The Koreans are able to support this extravagant lifestyle primarily because they live with their parents much longer than most Americans. Koreans still live with their parents 10 years or more after they start working. They pay no rent and primarily eat at home, so they have a lot more of their income left for other uses. This condition is partly the result of the close family culture of Korea, but is also due to the high cost of moving out on ones own. (Worthy, 1990)

The Korean manufacturing sector is concentrating much more attention on the domestic market now. For example, Hyundai developed a $10,000 sports car solely for the yuppie market. Credit card companies are targeting the yuppies as well, such as American Express. (Worthy, 1990) For the first time since Korea started exporting cars, domestic sales were expected to exceed exports in 1990. The rise of the won 30% against the dollar has made imports cheaper, and the demand for imports has also dramatically increased. (Maass, 1989)

Related and Supporting Industries

Industry clustering in Korea was found to be weak compared to other nations. There is some clustering, such as construction to cement and steel, and textiles

to apparel, but when looked at in terms of advanced nations it is quite thin. Korea has very few industries in components, tools, machinery, etc. Their industries primarily concentrate on production of final goods, and in most cases import the raw materials and parts used in the production process. The impact of this condition will make it hard for Korean industries to compete on product differentiation and innovation. Product and process technologies also tend to lag well behind world leaders as a result. (Porter, 1990, pg. 470)

Firm Strategy, Structure, and Rivalry

By 1969 large firms dominated the economy, with nearly 50% of Korean firms having over 200 employees. The government's effort to exploit economies of scale created favoritism and support of big business to meet economic growth goals. This led to concentrated wealth in the corporations the government favored and the rise of the Korean Chaebols. (Chang, 1991) By 1985 Korea's top 100 chaebols controlled 823 companies, and the top 10 held an average of 19 companies each. (Chang, 1988)

By 1990 the top 30 chaebols accounted for $180 billion or 76% of GNP. These figures clearly indicate the dominate role the chaebols play in the economy.

They also dominate the capital market, with debts in 1990 of $180 billion compared to only $45 billion in equity. ("Spoiled Rotten", 1991) The Bank of Korea predicted the top 30 chaebols would account for $200 billion of Korea's GNP in the 1990s, or roughly 95%. (Lee, Yoo, & Lee, 1991)

The Korean Chaebol's importance to economic growth failed to overshadow their criticism for aggressive expansion at the expense of small business, lack of business ethics, and concentration of wealth. Most chaebols follow top-down management practices, with very rigid decision-making policies. They employ tactics such as using marriages between elite families to gain advantages for their business. A recent survey revealed that a total of 21 marriages between family members of the top 10 chaebols had taken place. (Lee, Yoo, & Lee, 1991)

The success of the chaebols was heavily influenced by their corporate values. Employee loyalty and self-sacrifice were derived from these values. Each chaebol has a distinct culture based on the founder's beliefs, philosophies, and morals. The corporate culture is so strong that not conforming to it causes feelings of

guilt, leads to isolation from peers, and creates a sense of failure. There is intense pressure to conform from peers, as well as management. Being part of the corporate family leads to increased worker pride and contributes greatly to motivation and performance. (Lee, Yoo, & Lee, 1991)

Management used the corporate culture to humanize the business practices used to carry out their ambitious strategies. They stressed values such as creativity, solidarity, sincerity, harmony, diligence, and self-development to support their agendas. The basis of these values can be traced back to the basic Confucian values of the mass population. (Lee, Yoo, & Lee, 1991)

The values and corporate culture also play a key role in determining the corporate strategy of the chaebol. They influence the decision-making process and behavior of management and employees alike. A strong corporate culture is seen as facilitating the strategic fit between goals and objectives, and the behavior of the members of the organization. The culture supplies the implicit norms to guide actions in particular situations, as well. (Lee, Yoo, & Lee, 1991)

The founders of the major chaebols were described as men of vision, who skillfully planned their road to success. They were all adept at political manipulation, aggressively sought new products and markets, clearly understood how to get government financial backing, and competed vigorously both domestically and abroad. The success of the major chaebols was helped significantly by low interest rates on loans, the low value of the won compared to the dollar, and low oil prices during their climb. The population benefitted from the jobs created, but the poor distribution of wealth eventually created problems. (Chang, 1988)

The chaebols all wanted to be in the same industries, that caused a lot of duplication and over-capacity in these industries. For example, five of the major chaebols were in the auto industry by 1990, with a sixth planning to enter. As the chaebols got larger wages increased, which decreased cost competitiveness and lowered sales. As a result, profitability decreased to an average of only 0.72% for the top 50 chaebols in 1990. Quality also suffered with the growth because top management became spread too thin to manage all of the firms they held. ("Spoiled Rotten", 1991)

The Korean government appeared poised to get tough with the chaebols, that they considered out of control. They directed all chaebols to identify three core industries in that to compete and concentrate their resources on. The plan was not expected to work, however, since chaebols could still use the core companies to funnel funds to their other companies. The government was also expected to deregulate interest rates to force chaebols to drop uncompetitive companies to qualify for loans, and to give smaller firms a better chance to compete for loans. It seemed likely that the days of favored treatment and empire building in Korea were nearing an end. ("Spoiled Rotten", 1991)

The best chaebols were investing heavily in plant automation, moving factories abroad, and seeking new sources of profits heading into the nineties. One of the biggest problems was that the major chaebols all wanted to keep the same businesses: electronics, autos, shipbuilding, construction, industrial equipment, and petrochemicals, continuing the over-capacity conditions for these industries. (Kraar, 1990)

As of 1990, Table 1 lists the top four chaebols, that will be reviewed in the remainder of this section:

TABLE 1

1990 Operating Results[a]

Chaebol	Sales	Net Profit	Tot. Debt
Samsung	$35.6 bil	$348 mil	$27.8 bil
Hyundai	$31.8 bil	$445 mil	$26.6 bil
Lucky-Goldstar	$22.8 bil	$308 mil	$21.1 bil
Daewoo	$15.8 bil	$217 mil	$22.2 bil

[a]Adapted from "Spoiled rotten: South Korea's conglomerate corps". (1991). The Economist.

The Samsung Chaebol. Samsung was founded in 1938 as a trading company by Lee Byung Chull. As of 1990, Samsung had grown into Korea's largest chaebol, controlling some 38 companies. Samsung is Korea's leading producer of electronics, refined sugar, pharmaceuticals, and paper. Samsung's life insurance subsidiary holds sizable stakes in the Commercial Bank of Korea, Chohang Bank, and five others. The company even owns a professional Korean baseball team. (Kraar, 1990) Samsung's 1987 revenues of $24 billion would have ranked them fifteenth on the Forbes Top 500. (Tanzer, 1988)

Samsung was influenced the most by the Japanese in their development. The founder was educated in Japan, and maintained a mistress and two children in Tokyo. (Kraar, 1990) Lee spent several months each year in Japan visiting industrialists, bankers, bureaucrats, and journalists. In comparison to the other chaebols, Lee never made quick decisions, and consulted Japanese friends at Honda and Matsushita before making his plans. Upon his return from trips to Japan he informed others of his future business plans. (Tanzer, 1988)

Lee modeled his companies after Japanese firms, most notably Toshiba and Matsushita. He learned how to treat employees from the Japanese as well. Lee personally sat in on the final employment interview of every management candidate, and devoted 80% of his time to personnel matters. He was the first to use exams in recruiting employees, and he gave employees better wages, working conditions, and benefits to attract the top university graduates. His personnel program was so successful that Samsung was the only Korean Chaebol not unionized by the end of 1988. The only labor strike faced by Samsung through that time was at their shipbuilding firm, that was also their only unit that was losing money. (Tanzer, 1988)

Lee placed great emphasis on employee training, and developed the Samsung Education and Training Center modeled after Matsushita's training center. All new employees were sent there for initial training, and passing the 24 day course was a mandatory part of employment. The course emphasized teamwork and company loyalty. A typical day started at 5:50 am with the company song and a jog, and lasted until 10:00 pm. Each year every employee is sent back for a couple days of refresher training. The school also gives language courses in English, Japanese, and Chinese for those involved in exporting Samsung products. Samsung spends approximately $22 million per year operating this center, but it paid-off when they moved into more sophisticated manufacturing, such as numerically controlled machinery and semi-conductor production. (Tanzer, 1988)

Lee's third son, Lee Kun Hee, took over as Chairman of Samsung when his father died in November 1987. He has maintained Samsung's commitment to becoming a world-class competitor and has invested heavily in the future. In 1989 Samsung spent $120 million to automate their factories, again imitating Matsushita. Lee's son

was also educated in Japan, and Samsung's ties with Japanese industry remain strong. (Tanzer, 1988)

Chairman Lee keeps an executive staff of 250 of the best company managers at his Samsung Headquarter's to manage finance, investment, marketing, personnel, communication, and corporate strategy policies. Of all the major chaebols, Samsung was recognized as the best organized and managed. Samsung delegates full power and authority to individual firms, and uses the executive staff as a strong system of checks and balances to ensure corporate goals and objectives are being met. (Tanzer, 1988)

Samsung's current corporate strategy is to continue to upgrade their industrial technology. Samsung moved up the technology ladder methodically from their beginning in sugar refining and textiles in the 1950s, to paper and electronics in the 1960s, to construction and petrochemicals in the 1970s, and finally robotics, aerospace, computers, semi-conductors, and biogenetics in the 1980s. For the 1990s Samsung has made bold moves such as opening a biogenetics laboratory, and a semi-conductor design and pilot production plant in the U.S.; entering a joint venture with the government, Hyundai,

and Lucky-Goldstar to develop a four mega-bite computer chip; and carrying out plans to transform their textile company into a polyester videotape and color camera film producer. (Tanzer, 1988)

Samsung's new ventures have already achieved some successes. Their biogenetics lab developed an ointment for treating herpes and a vaccine for type B hepatitis. Their textile plant has achieved success in making the polyester based raw material used to produce videotape. Their aerospace division, originally established to service jet engines for the military, has received contracts to manufacture components for U.S. firms, and is going to build either the American model F-16 or F-18 fighter jet under a license agreement for the Korean Air Force. (Tanzer, 1988)

The Samsung Electronics Company, founded in 1969, passed Goldstar as Korea's leading electronics producer in 1984. In 1977 Samsung Electronics had revenues of $1.3 billion, primarily from the export of low cost TVs and microwave ovens. Electronics accounted for $3.2 billion of Samsung's total revenues by 1987. Their plant is vertically integrated by connecting dozen of factories with underground conveyors, making it one of

the best in the world. Roughly 70% of their products are exported. They supply products under Sears, RCA, GE, and J. C. Penny's brand names, as well as their own. In 1987 they held a 13% share of the U.S. VCR market and a 20% share of the microwave oven market. (Tanzer, 1988)

The Hyundai Chaebol. Hyundai, Korea's second largest chaebol, was founded in 1947 by Chung Ju Yung. Chung started Hyundai from a garage as a construction company. In addition to Hyundai Motors, that builds cars, trucks, buses, and special vehicles, other major businesses of the group include shipbuilding, heavy machinery, electronics, construction, and off-shore engineering. Hyundai Motors accounts for two-thirds of the group's total sales. ("Changing Chung's", 1990)

Chung is considered a master at exploiting Korea's greatest resource, a labor force willing to work long, hard hours for a chance to improve their life. Chung built his group from the success of his construction company. Hyundai's construction success was never more evident than in 1980 when they won an Exxon contract to build an off-shore drilling rig in Japan. Japan's construction firms were embarrassed when Hyundai beat them, and for the first time took the Korean competitive threat seriously. (Halberstam, 1988)

Hyundai's accomplishments through 1990 were impressive. They had sold over 400 ships in 30 different countries. They built steel towers in the U.S. and Saudi Arabia. They sold cranes and industrial robots, and built off-shore drilling rigs, solar power plants, and high-rise buildings throughout the world. (Decar, 1988) Hyundai also set a record by selling 168,000 Excels in their first nine months in the U.S. auto market, and exceeded their own sales projection by 68%. (Nakarmi & Cole, 1988)

Hyundai's growth has created significant problems for management. Chung ruled Hyundai as an iron-fisted dictator, as opposed to managing the group. The growth of the group has made it impossible for Chung to continue to effectively manage everything. When Chung retired he passed power to his son Chung Mong Ku, but he still runs things behind the scenes. (Heuslein, 1990)

Worker strikes hit Hyundai the hardest of all the chaebols. The autocratic Chung was the most unyielding to union demands, and he held fast to his tough management approach. Hyundai faced the largest and toughest union in the country, and was hurt the most by lost production and wage increases achieved by the labor

movement. For Chung the worst part has been the loss of his power to rule the workforce, rather than manage it. (Heuslein, 1990)

Despite their problems, Hyundai continued to promise bold, aggressive expansion in the 1990s. They were proceeding with plans to enter the petrochemical industry despite stiff competition, surplus capacity, and tough economic conditions. (Heuslein, 1990) The elder Chung made an unauthorized visit to the North in 1989 to explore opportunities there. Even though he angered the government, he made plans to develop a mountain resort there and to build a port facility. Chung sees the reunification of Korea as inevitable, and he acted boldly to get the jump on the other chaebols in exploiting opportunities there. Chung has also been aggressively pursuing opportunities within the former Soviet Union. Although the initial results have been disappointing, he is continuing to pursue ship repair business, and projects to develop natural resources in Siberia. (Glouchevitch, 1989)

Hyundai located its primary businesses in Ulsan, a small fishing village that was transformed into an industrial city of more than half a million people.

Hyundai employed 70,000 workers in 1990, of that 12,000 worked at Ulsan. The Ulsan industrial complex includes housing for about one-third of the workers, recreational facilities, educational facilities, and on-site health care. (Decar, 1988)

Hyundai Motors was built there in 1981, with an initial production capability of 60,000 cars per year. In just five years the plant's capacity was increased to 600,000 cars per year. Mitsubishi bought a 15% interest in Hyundai Motors, and helped them decrease their unit production time from over four minutes to two minutes per unit. The Japanese were enraged at Mitsubishi for helping Hyundai, that they view as a competitive threat. By 1990 Hyundai projected it would have its auto production capacity up to one million units per year. (Halberstam, 1988)

Hyundai took the Japanese by surprise. They never expected them to develop their production capability as rapidly as they did in autos, steel, and shipbuilding. They blamed their own youth's poor work habits, and slipping IQ for allowing Korea to catch-up so quickly. Hyundai workers considered the Japanese "the lazy Asians", because of their superior plant technology that

used robotics to reduce labor, and their shorter work weeks. (Halberstam, 1988)

Hyundai Motors began exporting their subcompact Excel model to the U.S. in 1986 as an alternative to Japanese models. The Excel sold extremely well during 1986 and 1987, and it was billed as the "Asian Volks-wagen". (Nakarmi & Cole, 1988) The Excel was equipped with a Mitsubishi 1.5 liter engine, drive train, and automatic transmission. The initial average delivered price was about $7,000. Hyundai also provided 30,000 Excels to Mitsubishi to sell under their model name Precis in the U.S. market. (Beauchamp, 1986)

The initial success of Hyundai in exporting their Excel model to the U.S. exceeded all expectations. They learned from the initial mistakes of the Japanese when they entered the U.S. market. Hyundai hired Italian engineers to design the Excel, based on poor U.S. acceptance of cars initially designed in Japan, and devoted much more money to advertising than Japan had when they entered the market. (Halberstam, 1988)

Hyundai's business strategy was modeled after the initial Japanese strategy in entering the U.S. market, as well. Their goal was to infiltrate the low-end of

the market, to establish their product, with an eye toward moving up to more profitable models down the road. They hoped to market a line of products similar to Honda's within three to five years. (Beauchamp, 1986)

Their initial success was short-lived and sales dropped sharply after 1987. The worker strikes forced increased wages, that pushed up the price of the Excel. Appreciation of the won against the dollar caused prices to go up even more. Hyundai used rebates to try to stimulate sales. (Nakarmi & Cole, 1988)

The real problems Hyundai faced were intense competition in a saturated market that had stopped growing, and a reputation for poor quality. The Excel was reported to have brake problems, handling problems, and be proned to over-heating. In addition to being unreliable, the cost of repairs were reportedly high compared to other models. With the price increases and their poor quality perception, U.S. consumers suddenly became willing to spend a little more money to buy a better rated car. (Nakarmi & Cole, 1988)

Hyundai responded to changes in the market by introducing an upscale model, the Sonata, to compete with the Toyota Camry and the Honda Accord. The Sonata

was priced $2,000 less than the competition, and they added 100 additional dealers to market it. They also increased advertising expenditures to improve their reputation, and equipped the Excel with an improved engine. (Nakarmi & Cole, 1988) Hyundai also began construction of a new plant in Canada in 1988 to produce the Hyundai Stellar. The Stellar is already being sold in Canada, that Hyundai uses as a test market before entering the tougher U.S. market. The Hyundai Pony was Canada's leading import as of 1988. (Beauchamp, 1986)

Another Hyundai product most Americans have been exposed to is their personal computers. Introduced also in 1986, their personal computers fared much worse than the Excel. They only sold 10% of their planned goal, 250,000 units, that year and they were embarrassed by major marketing problems. (Nakarmi & Lewis, 1987)

Instead of following their traditional practice of marketing their own products, they teamed with three distributors who were to market the computers under their own name. The distributors decided to mass market the computers in retail stores lacking trained sales help. When initial sales were disappointing, they decided to drop their name from the computers and use

the Hyundai name. They hoped the association with the successful Excel would catapult sales. The three distributors ended up in a dispute over who had the right to use the Hyundai name, and Hyundai was even more upset because they did not want their name used at all. Hyundai feared that the association between the computers and the Excel would hurt car sales. After an emergency meeting, Hyundai dropped two distributors and decided to market the computers under their own name to save face. (Nakarmi & Lewis, 1987)

The Lucky-Goldstar Chaebol. The Lucky-Goldstar group was founded in 1947 as a cosmetics retailer. As of 1990 they sold everything from shampoo, to semi-conductors, to solar power systems. The group's chairman, Koo Cha Kyung, was still trying to run it as a family business, making daily business decisions at the family breakfast meeting. The management of 31 companies, with $25 billion in sales, over the family breakfast meeting proved to be an impossible task for Koo. He continued to watch his group deteriorate as quality declined, innovation ceased, and Samsung moved ahead of them in electronics sales. (Nakarmi, 1991)

Most outsiders viewed the problem as a lack of courage within the group's management to tell Koo to get out of the management of daily operations, and let the professional manager's do their job. Fortunately they were spared this unpleasant task when Koo decided to bring in a U.S. management consultant. They advised Koo to delegate authority to front-line managers, and establish executive committees to oversee financial, strategic, and personnel matters to improve management efficiency. Koo proved he was serious about making these changes when he later fired three top executives for not delegating authority. (Nakarmi, 1991)

For Lucky-Goldstar all is not doom and gloom. The group's Goldstar electronic products enjoyed high brand recognition in the 1980s. Their petrochemical and trading companies increased profits 35% in 1990. Even with the decline in market share, their electronic products still accounted for 18% of their $25 billion in sales for 1990. Lucky-Goldstar, despite their problems, remained Korea's third largest chaebol, and had plenty of reason to be optimistic about their future prospects. (Nakarmi, 1991)

Lucky-Goldstar was also the victim of rising labor costs and lost production due to worker strikes. The Goldstar electronics unit was heavily dependent on low-cost labor for their exports, that are targeted at the low-end of the market. Price increases, combined with the perception of poor product quality, caused Goldstar to lose 8% of their market share by 1990. Wages doubled from 1988 to 1990, while in 1989 a worker's strike cost them an estimated $600 million in lost production. (Nakarmi, 1991)

Lucky-Goldstar has spent very little on research and development to create their own products. They rely on a strategy of imitating Japanese products and competing on labor cost advantages. This strategy hurt them significantly in 1987, because an imported Japanese computer chip they used in their VCRs turned out to be defective. They nearly lost their entire U.S. market share, and they were rated last in product quality. Their 19 and 20 inch color TVs fared poorly in quality ratings as well. By 1989 their electronic exports dropped from a high of $834 million to just $535 million. (Nakarmi, 1991)

Lucky-Goldstar planned to spend $10 million on advertising to rebuild their quality image. They increased the emphasis on quality in their plants, and were moving into products that were more "user friendly" such as easy to program VCRs. They also introduced an improved 27 inch stereo TV. They planned to invest $300 million to develop high definition TVs by 1995 and $2.2 billion to expand their computer chip business. One of their biggest problems is that all of their 30 odd firms are cash starved from years of neglect. (Nakarmi, 1991)

Lucky-Goldstar also is looking to joint ventures to improve their technology. They are working with Siemens in the telecommunications industry, Honeywell in the instrumentation control systems industry, and Hitachi in the communications cable industry. They recently opened plants in Europe to improve their competitiveness there, and to expand their markets. They were building TVs and VCRs in Germany, refrigerators in Italy, and microwave ovens in Britain by 1990. (Kraar, 1990)

The Daewoo Chaebol. The Daewoo group was founded in 1967 by Kim Woo Chong as a shirt-maker. Of the top four chaebols, Kim was the only founder still actively serving as chairman in 1990. Similar to Lucky-Goldstar,

Kim announced a major management shake-up in January 1991. Unlike Lucky-Goldstar, Kim announced that he was taking power back from the subordinate firms that he had previously given complete authority. Kim was upset with Daewoo's growth of 6.3% in 1989 and 10.6% in 1990, and their drop in exports from $5.1 billion in 1988 to $4.7 billion in 1990. (Nakarmi, 1991)

Kim determined that Daewoo's long-term survival was in jeopardy unless they quickly restructured. The company has lost money every year since 1988 in real operating terms, and posted a profit in 1990 only due to the sell of $165 million of major assets. Their attempt to get into the semi-conductor business failed. Their shipbuilding and heavy machinery companies were taking huge losses. Unlike the other major chaebols, Daewoo does not have leadership in any single industry on that it can pin its future survival. (Nakarmi, 1991)

Daewoo has marketed their products under a vendor strategy, rather than using their own name, to avoid possible protectionist legislation in foreign markets. Kim admitted this strategy was a mistake on his part, and that it had cost Daewoo the brand recognition they need to compete internationally. Daewoo products do

well in the domestic market, where their brand is well known, but their exports have dropped sharply. Their computers were distributed in the U.S. by Leading Edge, who went bankrupt. As a result, Daewoo was forced to start over in establishing a market for their computers. (Nakarmi, 1991)

Daewoo entered a joint venture with General Motors that proved disastrous as well. They were to build the Pontiac LeMans for export to the U.S. market. General Motors expected to benefit from low labor costs, but the worker strikes hit and wages soared. The strikes disrupted production and dealers could not count on deliveries. The initial units produced had numerous quality problems, that branded the car with a bad reputation. General Motors sent in an expert to solve the quality problems, but the damage was already done to the car's reputation. (Treece, 1991)

Conditions between Daewoo ard General Motors continued to worsen when they started blaming each other for the problems. Increased wages and the appreciation of the won caused production costs to increase rapidly. Daewoo wanted to upgrade their technology to compete more effectively, but GM refused to help them. Daewoo

was upset by Pontiac's marketing campaign, and claimed they failed to aggressively pursue sales. Daewoo was forced to use the domestic market to sell the LeMan's, and they got the help they needed from Suzuki to upgrade their technology. Daewoo increased sales 36% by selling in the domestic market. (Treece, 1991)

Kim decided to abandon his hands-off management approach, because he saw Daewoo collapsing before his eyes. Kim had spent most of his time traveling the world to promote Daewoo products until 1989, when he took over day-to-day control of the shipbuilding unit. He injected $300 million of his own capital, and 18 months later was making profits again by cutting costs. He saved $8 million a year just by eliminating free company haircuts. (Nakarmi, 1991)

Kim moved to eliminate poor performance across the entire group when he returned to active management. In 1990 he forced many senior executives to retire, and he cut roughly a third of Daewoo's middle managers. Kim was outraged at their failure to cut costs and increase production as wages increased. (Nakarmi, 1991)

With a wiser Kim back in charge, Daewoo was busy formulating new strategies for the 1990s. Kim is quite

determined to correct his past mistake of not marketing the Daewoo brand name. He entered a joint venture in France to directly market the Daewoo personal computer. He was shopping the U.S. for small textile, electronics, and auto part firms he could acquire to directly market Daewoo products. He was also considering going ahead with direct marketing of Daewoo products on the open market. Daewoo planned to design and market their own car, the Espero, as well. Their heavy industries have acquired several major new parts contracts with U.S. aerospace defense firms. Daewoo was expected to show an operating profit in 1991. (Nakarmi, 1991)

Kim is characterized as a relentless, driven executive who never takes a day off. He even showed up at work, on a Sunday afternoon, the day after his son's funeral (his son was killed in an auto accident while attending college in the U.S.). Kim reportedly sleeps only a few hours per night, and is totally obsessed with ensuring Daewoo's success. He is renowned for special his talents in global marketing, and he is expected to lead the way in opening new markets in Eastern Europe and the former Soviet Union. (Kraar, 1990)

Daewoo has already demonstrated innovation in opening new markets. They are buying Libyan oil from Czechoslovakia for trade credits, and processing it at their Belgium refinery. They built a tire factory in Sudan in exchange for cotton for their textile plant to make clothing in Korea. Daewoo's future appeared to be turning in the right direction heading into the decade of the 1990s, and Chairman Kim appears to thrive on meeting the challenges ahead. (Kraar, 1990)

Role of Government

The Korean government has placed their fate on the implementation of a series of five year economic growth plans. The emphasis of Korea's economic development initially was industrializing to substitute imported goods with domestic goods. The major change in the new economic growth plans was to shift their focus away from import substitution, and to make exports their top priority. This shift is viewed as a major turning point for the Korean economy. As Korea achieved small successes, confidence and momentum built to sustain the effort. (Ihm, 1988)

The challenges faced by the Korean government to get their economy moving were enormous. The rate of savings within the country was low due to the poverty of

the mass population and the huge trade deficits made foreign capital unavailable to firms unless the government guaranteed repayment. Defense spending consumed 25% of the national budget, further constraining Korea's scarce capital resources. (Park, Yung 1990)

Chief elements of the government's strategy included emphasize on market share over short-term profitability, and a proprietary product strategy aimed at establishing their own brand names. The government recognized to achieve their goals they had to first establish themselves in world markets. To do so, they set prices for all exports, frequently below their production costs, and subsidized the profitability of the manufacturers to keep them from going bankrupt. Use of this long-term strategy helped to entrench their products in world markets. (Blevins & Lee, 1990)

The government not only set export prices, they controlled that firms were licensed to produce export products, that products they would produce, and what the production levels would be. (Ihm, 1988) They offered preferential tax treatment, allocated capital resources at lower than market interest rates, and reduced tariffs on imported raw materials for the firms selected to

support their export goals. The government became so entrenched in these firms that they actually participated in the business decision making process as well. In fact, Korea may have been more appropriately referred to as Korea, Incorporated. (Park, Yung 1990)

The government used export targets based on commodity markets to establish goals and control the economy. Progress toward meeting the targets was monitored daily, and intervention came quickly when it appeared a target might be missed. Formal evaluation of each industry was accomplished during monthly export performance reviews. Companies were rewarded with a National Medal of Honor or a Presidential Commendation for outstanding performance in meeting goals during these reviews. (Chang, 1991)

The government's control over imports was equally important to their economic strategy. The government instituted favorable policies for the import of raw materials, particularly those used to produce export products. The import of consumer goods was tightly controlled. This was especially true of agricultural products, since the government sought to protect the income of rural farmers. The intent of this policy was

to reduce consumer consumption by making fewer goods available, to force increased private savings, and to reduce the trade deficit. (Ihm, 1988)

Most U.S. imports to Korea, other than capital goods, are classified as luxury items by the Korean government. In 1989 for example, a mere 6% of the $13.5 billion in goods imported to Korea from the U.S. were classified as consumer goods. Goods that are classified as luxury items are assessed higher tariffs to make them more expensive on the Korean market. As an example, a refrigerator selling for $1,700 in the U.S. cost about $4,200 in Korea. An American automobile, like the Mercury Sable, cost up to $39,000 that was out of the price range of most Koreans. (Magnusson, 1991)

Another practice employed by Korea's government to stall successful marketing of American products was to hold them up with custom's inspections. Items took anywhere from five days to over four months to clear customs, that made perishable products virtually unmarketable in Korea. (Magnusson, 1991)

These developments were in sharp contrast to expected movements in the Korean government's position on imports. Under a five year reduction plan, tariffs

were expected to decrease by 7 to 8% by 1993. The regulations restricting import licensing were also suppose to be eased, to allow 95% of all goods to get automatic import licensing. (Amador, 1990)

The most significant event affecting Korea's modern government involved the presidential election held in 1987, the first in 16 years. The current ruling party, led by President Roh Tae Woo, won the election with only 37% of the popular vote. Opposition party candidates split the vote, that allowed President Roh to win by a narrow margin. The major effect of the election has been President Roh's aggressive pursuit of democratic reforms since taking office. This rapid transformation has created widespread turbulence and violence throughout Korea, as the population used their new found freedoms to unleash years of pent-up tensions. (Kaltsounis, 1988)

The goals established by the new government were to become the 15th largest economy in the world and the 10th largest trading nation. To accomplish these goals they plan to move into more sophisticated markets. They have targeted capturing an 11% share of the world semi-conductor market by the year 2000 as one of their

primary goals. (Decar, 1988) They also planned to create a $1.5 billion technology fund to raise research and development spending to about 3.5% of GNP, as opposed to the current 2% level. (Yoon, 1991)

Role of Chance

Korean industries entered the world market when considerable advantages existed, that made it easier to get started. Nations, such as the U.S., had large trade surpluses and there was very little protectionist sentiment toward foreign trade. Korean firms were not viewed as a legitimate threat to world markets, since they operated in a small, underdeveloped, and resource poor nation. Their only real resource, an abundant supply of unskilled labor, was not considered a major competitive advantage in highly industrialized, technically superior nations. (Ihm, 1988)

During the 1970s the world was hit twice by a major oil crisis. The first one in 1973 brought on a world-wide recession, that led to protectionist sentiment in major industrialized nations. Korean products lost their marketability in world markets, that was critical to the export dependent Korean economy. Fortunately, this recession was short-lived and things rapidly

returned to normal with Korea having felt very little impact. The second crisis in the late 1970s caught up with Korea. This crisis produced inflation of 30 to 40% per year and left Korea a trade deficit of $5.3 billion. It was their first period of negative growth since 1962 and the effects lingered into the 1980s. (Ihm, 1988)

The Samsung Chaebol provided a good example of the effect a chance occurrence of a major event can have on a Korean firm. Samsung's founder wanted to move into semi-conductors, so he invested $875 million to create Samsung Semi-Conductors and Telecommunications. The plant started out making 64K DRAM chips. By chance the U.S. and Japan reached an accord to limit the number of Japanese chips imported to the U.S. following charges that they were being dumped on the U.S. market below their production cost. The accord caused a shortage of chips, that drove up prices. Samsung benefitted tremendously by filling the shortages and they became profitable at the higher prices. (Tanzer, 1988)

By 1986 Samsung moved into mass production of 256K DRAM chips, making Korea only the third country in the world with this capability. Samsung's competitors were shocked when they achieved this capability in just one

year, which had never been done before. The hard work and commitment of their employees was credited with this huge success. By 1988 Samsung had the capability to produce between five to eight million 256K DRAM chips per year, and they were challenging U.S. and Japanese makers for world market leadership. (Tanzer, 1988)

The nordpolitik represents a major chance for new opportunities for Korean businesses in the 1990s. The establishment of diplomatic relations with the former communist bloc nations is viewed as a means of achieving the political goal of reuniting the Korean Peninsula, and at the same time provides important new trade partners to continue Korea's economic boom. In the face of the growing likelihood of protectionist policies being implemented in the U.S., in response to Korean trade surpluses, the government felt it had to find new trade opportunities to sustain the nation's economic growth, and movement toward becoming a fully industrialized nation. (Ahn, 1991)

Korea has established diplomatic relations with the former Soviet Union, Hungary, Poland, Yugoslavia, China, Bulgaria, Czechoslovakia, Mongolia, and Algeria as part of their nordpolitik policy. Korea is seeking to gain

favor and influence with the Soviets and Chinese by offering to help meet their economic needs under more favorable conditions than the Japanese offered. (Park, J. 1990)

The successes to date of the Korean nordpolitik policy have been primarily with the Soviets. Korea is expected to provide them $10 billion in investments and loans as part of an economic aid package. (Ahn, 1991) The road from the airport to Moscow is lined with billboards advertising Korean products where communist banners once flew. The Koreans are hoping to develop the raw material resources, such as iron and coal, in Soviet Siberia for use in their steel plants, and to harvest the timber there for their housing needs. ("The Rohcomotive", 1990)

The Soviets find Korean industry more compatible with their needs, because of their less developed manufacturing skills, than the highly advanced Japanese industries. The unskilled Soviet workforce is expected to adapt the less sophisticated Korean technology much faster and easier. The Soviet's main goal is to get the Koreans to assist them with their industrialization plans, and in particular, to help them convert their

military factories into civilian industries. Daewoo, for example, helped them convert a weapon's plant into a washing machine plant, using electric motors that they supply. ("The Rohcomotive", 1990)

In trade progress, Hyundai announced plans to help a U.S. firm build a $5 billion petrochemical complex in Siberia. In January 1991 the government also agreed to provide $3 billion in economic aid over three years, of that $1.5 billion was to be used to purchase Korean goods. Korea is also trying to get advanced technology from the Soviet's former defense industries, and hopes to transform that technology into improved products and manufacturing techniques. (Ahn, 1991)

Another chance opportunity that may present itself to Korea this decade involves the reunification of the Korean Peninsula. South Korea views the North as a potential source of badly needed cheap labor and raw materials. The South is confident the people of the North will abandon communism once they taste the fruits of capitalism. The reunification would meet critical needs of both nations, and it could help make Korea the next fully industrialized nation. (Nakarmi & Neff, 1991)

CHAPTER 3

Summary Findings and Conclusions

Korea's Competitive Advantages

Figure 1 below depicts the dynamic diamond of the four basic determinants as presented in Porter's The Competive Advantage of Nations work:

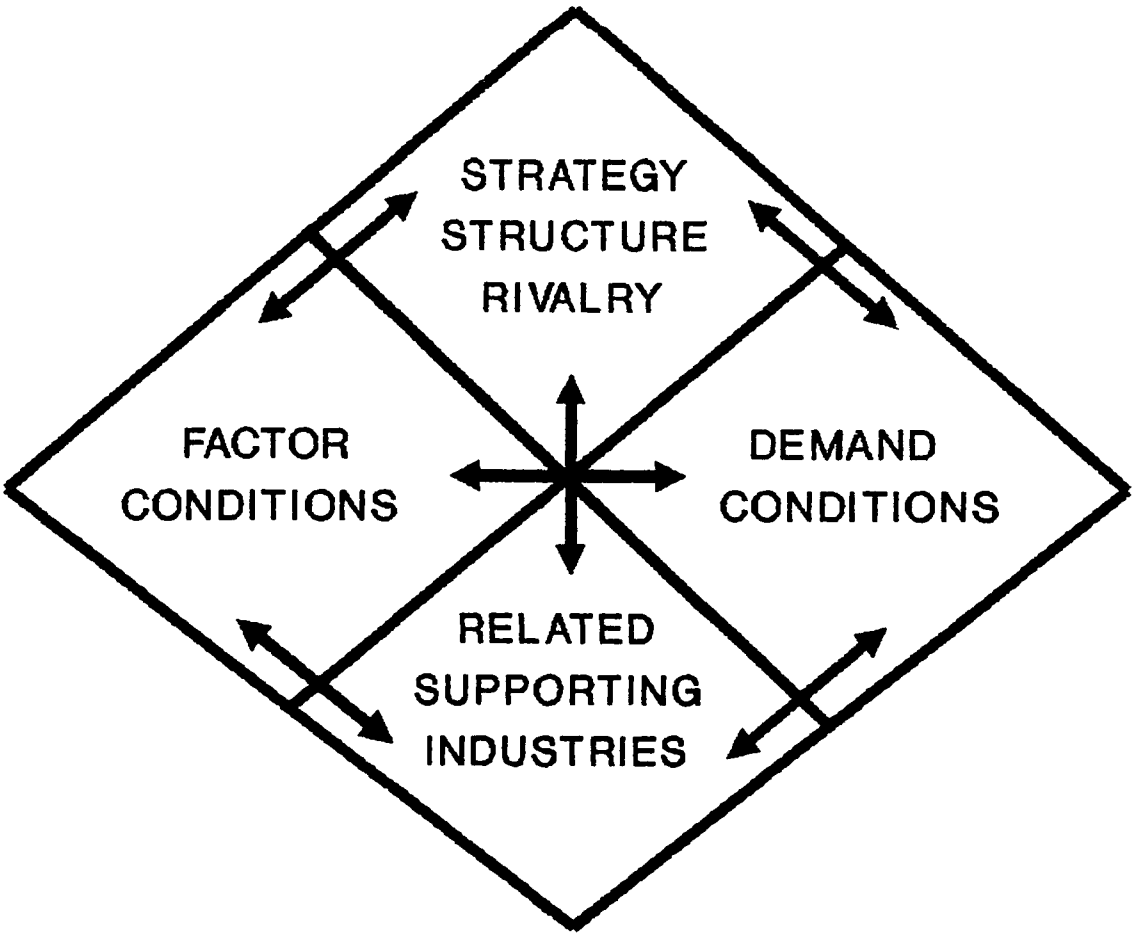

Figure 1. Dynamic Diamond of Determinants.
(Porter, 1990, pg. 163)

The following discussion of Korea's national competitive advantages and problems as a home base support environment for various industries is based upon Porter's four determinants, along with the additional influences of government and chance. Porter makes several points that are critical in understanding this discussion. First, and most important, is that these determinants are all related to each other. As shown in Figure 1, the relationships involved are very complex and intricate, since they all interact to affect the level sophistication of development within any specific area. It is impossible to assess them adequately and accurately on an individual basis therefore. (Porter, 1990, pg. 72)

Another key point is that to be a truly successful fully industrialized nation requires a high level of development within each determinant. The level of development on specific areas of each determinant can be best viewed as a continuum. To achieve status as a fully industrialized nation requires national attention to developing competitive advantages within each determinant, to move to the upper end of the continuum. Competitive advantages do not just happen. Nations must

consciously act to create them. In fact, the rate at that advantages are created or upgraded proves to be more important than the existing level at any given time. (Porter, 1990, pg. 74)

Finally, the relative importance of each determinant is not equal, even though all must be highly developed to succeed. Typically emerging national industries can compete solely on what Porter calls low order factors, such as low wage rates. To develop and succeed in the long-run requires devoting attention and resources to developing advantages on the higher order factors, such as technical innovation, because low order advantages are quickly overcome by other nations with more favorable conditions. (Porter, 1990, pg. 77)

Like most newly industrializing nations, Korean industries entered world markets by competing on factor conditions. Foremost among these factors was their human resources. The Korean workforce is characterized as having one of the strongest work ethics in the world. The mass population was willing to make the needed sacrifices to improve their standard of living and to overcome the long years of economic deprivation. After being treated as subservient, second-class people by the

rest of world throughout their history, Koreans were determined to prove their capability to compete with the leaders of the world economy. Their work ethic, determination, and national pride provided the catalyst for phenomenal economic growth and development, that only the Japanese had achieved before them.

Korean industries succeeded in global markets by taking advantage of their low labor costs relative to other nations. Their basis of competition was purely product price, with total disregard for differentiation and innovation. In fact, their products were best described as cheap imitations of American and Japanese products. When Korea entered the global markets their wage rates were considered among the world's lowest. By world standard's Korean wages are still far below those of other industrialized nations; however, Korean wages have grown to the point that they are no longer cost competitive with other newly emerging nations.

The other area within human resources, management, proved interesting in its role in Korea's growth. The founders of Korea's large chaebol groups were largely uneducated, typical of the mass population at the time. What they brought to the market in place of education

was charismatic leadership and entrepreneurial spirit. They were bold and aggressive in entering new markets, partly because of their character, and partly because of their firm backing from the government.

Their management practices and philosophies were based on the government's military type system, that served as their basic model to emulate. The only exception uncovered was Samsung, whose founder used his ties to Japan to emulate their system. They developed very strict rules and discipline in their factories, much like the harsh conditions during their periods of occupation by other nations. The workforce endured these conditions in support of the national interests for economic growth and prosperity, that were considered far more important than personal aspirations. Korea eventually no longer needed this type management, but it remained in place until violent student protests forced democratic reforms on the government. Korean managers are now struggling to handle the changes brought on by the reforms.

Korean managers still lack the needed knowledge and experience to excel using the newer management theories. For example, they lag far behind the world in imple-

menting and using strategic long-range planning, despite a large number of highly educated executives now in place in the chaebols. Another area of concern has been their poor handling of worker strikes, and their ineffectiveness in dealing with the newly created labor unions. Management sophistication is an area that must advance for Korean industrial prosperity to continue.

Equally important in Korea's success was their emphasis on knowledge resources. Korea started out with virtually no worker skills in manufacturing, yet today their workforce is considered among the most highly skilled in the world. The Korean government played a major role in this area with their development of a sophisticated network of vocational training centers. Combined with the nation's work ethic, and high reverence for education based on their Confucian values, it is not surprising Korea has excelled in this area of development. Korea's sophisticated industrial workforce is a definite competitive advantage.

A major difference between Korea and other newly emerging nations has been their level of investment in knowledge resources, both public and private. Koreans recognized the importance of development in this area to

their future growth plans at an early stage in their planning. They invested heavily to create a first rate education system capable of producing the technical professionals needed to move into more sophisticated industries. Their success in this area has been unmatched by other emerging nations. Their current strong base of trained scientists and engineers provides them a definite advantage for the future.

Korea's attempts to develop a strong technical infrastructure have been rocky. At first they lacked the needed trained scientists and engineers to staff the institutions they created. Their capital resources were also scarce, and the government had to allocate them based on their most urgent priorities. The lack of funding and trained experts are no longer problems in Korea today. Korea has restructured their institutes for technical advancement more efficiently, and now appear to be capable of taking the next step to becoming a nation that innovates new products.

A major problem for Korean industries still today is their inefficient capital markets. The Korean government has tampered with and manipulated the market since its inception. At first this was necessary to

ensure scarce capital resources were used for the nation's most urgent priorities. As Korea developed, the need for their intervention greatly diminished. Even so, the government failed to cease their constant intervention, and to allow the free market to guide capital formation in the most efficient manner.

Korea's stock market has grown stronger, yet it still suffers from the prohibition of foreign capital investments. The government promised to open the market to foreign investment several times, but each time failed to follow through. The bond market is even worse, and still does not provide a viable source for financing corporate ventures. The government's policy of favoring the large chaebols stagnated the formation of new small businesses. This policy held back Korea's development, especially in the formation of related supporting industries. Another drawback of this policy was losses in product innovation, since typically small businesses are the source of creative new products.

Infrastructure concerns for Koreans exist in housing and the erosion of their cultural values. The cost of housing is extremely high in Korea, especially in the large metropolitan areas. The ability of future

generations to buy their own home is expected to worsen, with the anticipated population growth further straining an already tight market. The influences of evolution into a modern society has also caused a significant erosion of the traditional family and communal values of Korea. Koreans are much less willing to make personal sacrifices now that they have tasted prosperity, and they are becoming much more consumer oriented than they were in the past.

Increased consumer spending in Korea should spur development of the domestic demand determinant, that to date has played the smallest role in their success. The government emphasis on exports, and actions to promote private saving over consumption, effectively defeated the growth of a sophisticated home market. Korean domestic consumption was limited to the basic essentials of life for survival up until the democratic reforms of 1987. Even the wealthy in Korea shunned showing that wealth through consumption for fear of government reprisals. These conditions have changed thanks to increased wages, greater emphasis on the domestic market by Korean industries, and the breakdown of the traditional value of living a frugal lifestyle for the benefit of national prosperity.

Korean industries have suffered from the lack of having sophisticated home consumers to serve. Their ability to accurately assess consumer needs and desires in product attributes, for example, has depended upon their copying of products of other nations. As a result, Korean industries have been followers lagging far behind other nations in product quality and innovation. Their projected development of a much more sophisticated home consumer base, particularly the young professional yuppie market, should correct this situation. Improvement in this area is a mandatory requirement for Korea's continued movement toward full industrialization.

The area of related and supporting industries has also been a very weak area in Korea's development. With a few exceptions, the majority of Korean industries produce final end products from imported raw materials or components. Their heavy dependence on imports to support their manufacturing base puts them in a very vulnerable position. A prime example was Goldstar's near total elimination from the VCR market because of the use of a defective computer chip imported from Japan. Korea's strongest industries have been those with significant clusters of related supporting firms.

These include shipbuilding with steel, construction with steel and cement, and textiles with apparel. New areas are emerging, such as semi-conductors, electronics, and computers, that are vital parts of Korea's continued future development.

The final determinant, firm strategy, structure, and rivalry, has played the second most important role in Korea's development. The rise of the Korean Chaebols was an important element of their ability to compete internationally. These large conglomerates were able to concentrate scarce resources to accomplish national economic goals, that allowed the government to focus their efforts more succinctly. The economies of scale they produced also contributed heavily to their ability to compete successfully on factor conditions.

The export strategy proved to be a great stimulus for propelling Korea's initial economic prosperity, even though it hurt development of domestic demand later on, as previously discussed. Probably the most important element of Korea's strategy was establishment of their own brand names in foreign markets. This strategy has been ignored in other emerging nations, like Taiwan and Singapore, that has left them dependent on subcontracts

and foreign designs to keep their factories operating. This has left these nations vulnerable to the whims of the foreign industries they produce goods for, that can move those contracts to competing industries in other nations offering better factor conditions at any time. Korean firms have a definite advantage in this respect, since they are much less dependent on this condition. The Daewoo Chaebol is an excellent example of this point. They chose not to market their own brand names as the other chaebols did, and have been significantly hurt by the loss of vendor contracts.

Korean industries have a number of problems that must be resolved in this area as well. First, the lack of development of small businesses hurt innovation and related industry development, as previously discussed. The intense domestic rivalry between chaebols spurred productivity growth to improve global competitiveness, but it has also created a lot of duplication within specific industries and over-capacity for meeting world demand. The chaebol founders all wanted to compete in the most highly visible industries, such as cars, ship-building, computers, electronics, and construction. These industries were favored because of the social

status and prestige attached to being involved in them. In the process of development, the less visible supporting industries, such as auto parts and factory machinery, were ignored. Finally, the large Korean Chaebols are much like the conglomerates developed in the U.S., that proved to be a poor form of corporate structure. The chaebols are collections of highly diversified companies, that have logical basis for their strategic fit within a single corporation. The result has been a loss of the core competencies on that the chaebols were founded, and a group of companies so diversified that it is impossible for a single manager, or management group, to effectively control them all.

Beyond the determinants, the influences of the government and chance also deserve brief mention. As can be clearly seen in previous discussion, Korea's government has played significant roles within every determinant. Whether or not that role has always been in the nation's and industry's best interest is highly questionable. Still, the government's contributions cannot be ignored. Their five year economic development plans served as the initial driving force to get Korea's economy moving in the right direction. Their export

targets and clear definition of national goals provided the motivational incentives to industry and the work-force to move ahead. Their most important contribution may very well have been their strategy to promote their own brand name products, instead of becoming solely a contract vendor for other nations.

As for chance, the best example provided was the Samsung case in the semi-conductor market. Their success was in doubt until trade friction between the U.S. and Japan opened the U.S. market to them. Korean firms have benefitted greatly over the years from such chance occurrence of events. Even their nordpolitik policy now stands to benefit greatly from chance events. This policy was initiated during the Summer Olympics in 1988, but the fall of communism since then now makes it a much more lucrative opportunity. To say the Koreans have made the most of chance opportunities would be a quite fair assessment to date, and their potential to continue exploiting chance events appears very good.

Korea's Future Outlook

Prior to discussing Korea's future outlook, it is necessary to look at Korea's present position on Porter's evolution of competitive advantage model. The

stages of the model involve movement from factor to investment to innovation driven competition. In Porter's analysis of Korea, he has placed them solidly in the investment driven stage, with strong potential to move up to the investment driven stage if they follow the right future strategies. The remainder of this section is devoted to discussing those strategies perceived to be of utmost importance to Korea's continued development. (Porter, 1990, pg. 685)

As noted, to date Korea has invested much more heavily in knowledge and infrastructure than other comparable nations. Yet Korea's payoff for these investments has been modest so far. To move beyond their current stage of development, the expected rewards from these investment must be achieved in the form of product innovations and improved manufacturing processes. Korea now has the trained scientists, engineers, and the technological infrastructure needed to innovate world class state-of-the-art products. The next step is to demonstrate the capability to transform this potential into positive results. Korea has stock-piled a wealth of highly trained technical experts and they must directly compete now with other nations.

The Korean government's constant intervention in private industry and manipulation of free markets needs to come to an end. The government has no place in labor negotiations and should let the free market determine wages. The growth in wages should actually benefit the economy by stimulating domestic demand growth. Higher wages should lead to greater sophistication in home base consumer demand, a factor already identified as needing much improvement in Korea. In addition, the higher wages will put more pressure on Korean firms to improve their productivity, and to upgrade their manufacturing technology.

Along the same lines, the government must allow capital markets to operate freely to increase their efficiency. Their practice of constantly intervening to correct perceived problems with the value of their currency or high rates of inflation has proven to be counterproductive. In addition, actions favoring capital allocation to big businesses over small business has wiped out a major segment of opportunity for future Korean businesses. The efficiency of a free capital market is needed to ensure the entrepreneurial spirit of Korean small businesses is given the opportunity grow.

The two determinants in that Korea has major weaknesses, domestic demand and related supporting industries, must be further developed for their industries to move forward. As previously mentioned, the signs are encouraging that this development is occurring. The government must be careful not to do anything to set back this development. For Korea's industries to become truly innovative they will need a much more sophisticated level of customer demand to push their rate and level of technical accomplishment. They also need industries to cover the entire spectrum of the value chain to ensure full understanding of the product. The government must act to create and sustain a home base industrial environment that stimulates this development. Korea's democratic reforms may prove instrumental in advancing development in these areas.

Breaking-up the large Korean Chaebols could prove helpful to Korea's development, but is unlikely to occur anytime soon. The chaebols have grown too large and diversified to successfully manage. They have abandoned their core competencies in most cases, and are largely collections of companies with no strategic fit. They have created over-capacity in many industries, while

other potentially lucrative industries have been ignored. They have also over concentrated much of the nation's wealth and economic power in the hands of family members of their once prominent founders.

As a final note, Korea's future outlook for the remainder of the 1990s shows tremendous potential. It remains to be seen how well they capitalize on that potential, but there is plenty of reason for Koreans to be optimistic. They are proceeding at a torrid pace in fulfilling the requirements of Porter's determinants. They have some tough decisions to make to get to the next level, but based on past performance the best indications are they will follow the right path. Japan faced similar circumstances following their initial rise to prominence and was able to overcome the obstacles. Korea has shown the ability to match the accomplishments of the Japanese and should continue to follow in their footsteps.

REFERENCES

REFERENCES

Abelson, P. H. (1988, April). Research and development in South Korea. Science. pg. 9.

Ahn, B. J. (1991, September). South Korean-Soviet relations. Asian Survey. pp. 816-827.

Amador, R. T. (1990, April). Korea: Improved access is likely for U.S. goods and services. Business Week. pg. 32.

Amsden, A. H. (1990, Winter). South Korea's record wage rates: Labor in late industrialization. Industrial Relations. pp. 77-91.

A new society. (1989, April). The Economist. pp. 23-25.

Arnold, W. (1988, April). Science and technology development in South Korea and Taiwan. Asian Survey. pp. 437-450.

Bae, K. (1989, Fall). Labor strategy for industrialization in South Korea. Pacific Affairs. pp. 353-363.

Beauchamp, M. (1986, December). Foot in the door. Forbes. pg. 34.

Big brother bows out. (1991, September). The Economist. pg. 98.

Blevins, D. E. & Lee, J. (1990, January). Profitability and sales growth in industrialized versus newly industrializing countries. Management International Review. pp. 87-100.

Burge, F. M. (Ed.). (1981, July). South Korea: A country study. U.S. Government Press. Washington,D.C.

Burmeister, Larry L. (1990, July). South Korea's rural development dilemma. Asian Survey. pp. 537-544.

Changing Chung's. (1990, January). The Economist. pg. 62.

Chang, S. C. (1988, March-April). Chaebol: The South Korean conglomerates. Business Horizons. pp. 51-57.

Chang, Y. S. (1991, January). The personalist ethic and the market in Korea. Comparative Studies in Society and History. pp. 106-127.

Collins, S. M. (1990, May). Lessons from Korean economic growth. American Economic Review. pp. 104-107.

Costly. (1991, May). The Economist. pg. 32-33.

Decar, P. V. (1988, July-August). Teaching about Korea in secondary school. The Social Studies. pp. 186-191.

Glouchevitch, P. (1989, July). The world's billionaires. Forbes. pp. 206-208.

Halberstam, D. (1988, February). Japan all over again. Business Month. pp. 60-63.

Heuslein, W. (1990, July). The world's billionaires. Forbes. pp. 126-132.

Ihm, C. S. (1988, July-August) South Korea's economic development. The Social Studies. pp. 165-169.

Kaltsounis, T. (1988, July-August). South Korea: A country on the move. The Social Studies. pp. 137-139.

Kim, K. C. & Kim, S. (1989, October). Kinship group and patrimonial executives in a developing nation. Journal of Developing Areas. pp. 27-45.

Kraar, L. (1990, Fall). Ten to watch outside Japan. Fortune. pp. 25-36.

Lee, J. H. (1988, July-August). Features of Korean history. The Social Studies. pp. 147-150.

Lee, S. M., Yoo, S., & Lee, T. M. (1991, Spring). Korean chaebols: Corporate values and strategies. Organizational Dynamics. pp. 36-51.

Lew, S. C. (1988, July-August). Life in South Korea today. The Social Studies. pp. 161-164.

Lie, J. (1990, April). Is Korean management just like Japanese management. Management International Review. pp. 113-118.

Maass, P. (1989, September). Is the Korean miracle running on empty. U.S. News & World Report. pp. 55-56.

Magnusson, P. (1991, January). Seoul's crackdown on imports may be a luxury it can't afford. Business Week. pg. 46.

Mahler, W. (1990, June). The growth of the Korean capital market. Finance & Development. pp. 41-45.

Matthes, K. (1991, February). Korea capitalizes on growth. Management Review. pp. 12-13.

Nakarmi, L. (1987, August). Will labor unrest wreck Korea's economic boom. Business Week. pg. 51.

Nakarmi, L. (1991, February). At Daewoo a revolution at the top. Business Week. pp. 68-69.

Nakarmi, L. (1991, February). At Lucky-Goldstar the Koo's loosen the reins. Business Week. pp. 72-73.

Nakarmi, L. & Cole, P. E. (1988, December). Hyundai is cooling off after a hot start. Business Week. pg. 63.

Nakarmi, L. & Lewis, G. (1987, June). Hyundai computers are stuck in the slow lane. Business Week. pg. 50.

Nakarmi, L. & Neff, R. (1991, October). Asia's next powerhouse: An all-but-unified Korea? Business Week. pg. 63.

Park, J. (1990, December). Political change in South Korea: The challenge of the conservative alliance. Asian Survey. pp. 1136-1143.

Park, Y. C. (1990, May). Development lessons from Asia: The role of the government in South Korea and Taiwan. American Economic Review. pp. 118-121.

Peters, T. (1990). Prometheus barely unbound. Academy of Management Executive. pp. 70-84.

Porter, M. (1990). The competitive advantage of nations. New York: The Free Press.

Powell, B. & Bank, D. (1990, May). Asia's wounded tiger. Newsweek. pg. 48.

Rho, B. H. (1987, March-April). A comparison of long-range planning in South Korea, Japan, and the U.S. Planning Review. pp. 32-36.

Shin, S. H. (1988, July-August). South Korea and the future. The Social Studies. pp. 194-195.

South Korea. (1990). PC Globe. Tempe, Az: PC Globe.

Spoiled rotten: South Korea's conglomerate corps. (1991, June). The Economist. pg. 76.

Tanzer, A. (1988, May). Samsung: South Korea marches to its own drummer. Forbes. pp. 84-89.

The drenching of Roh Tae Woo. (1990, May). The Economist. pp. 33-34.

The rohcomotive that could. (1990, December). The Economist. pp. 39-41.

Treece, J. B. (1991, September). Why GM and Daewoo are on the road to nowhere. Business Week. pg. 55.

Worthy, F. S. (1990, June). Asia's new yuppies. Fortune. pp. 224-229.

Worthy, F. S. (1991, June). You can't grow if you can't manage. Fortune. pp. 83-88.

Yoon, Y. (1991, April). Economic prospects of South Korea in the 1990s. Mid-Atlantic Journal of Business. pp. 49-54.

VITA

CHRISTOPHER J. ADDISON

Personal Data:	Date of Birth: May 8, 1957 Place of Birth: Wilmington, Delaware
Education:	Public Schools, New Castle, Delaware University of Delaware, Newark, Delaware; Business Administration, 1976-1979. Engineer Officer's Basic Course, Ft. Belvoir, Virginia, 1981. Christopher Newport College, Newport News, Virginia; Business Administration, B.S.B.A., 1984. Engineer Officer's Advanced Course, Ft. Belvoir, Virginia, 1986. Combined Arms Services Staff School, Ft. Leavenworth, Kansas, 1988. Command and General Staff College, Ft. Leavenworth, Kansas, 1988. Material Acquisition Management Course, Ft. Lee, Virginia, 1991. East Tennessee State University, Johnson City, Tennessee, Engineering Technology, M.S., 1992.
Professional Experience:	Engineer Officer, U.S. Army Corps of Engineers, 1981-Present. Research, Development, Test, and Evaluation Officer, U.S. Army Material Acquisition Corps, 1990-Present.
Honors and Awards:	Meritorious Service Medal (2), Army Commendation Medal (3), Army Achievement Award (2), Overseas Service Ribbon, Honor Graduate Material Acquisition Management Course, Selected for Promotion to Major 1992.